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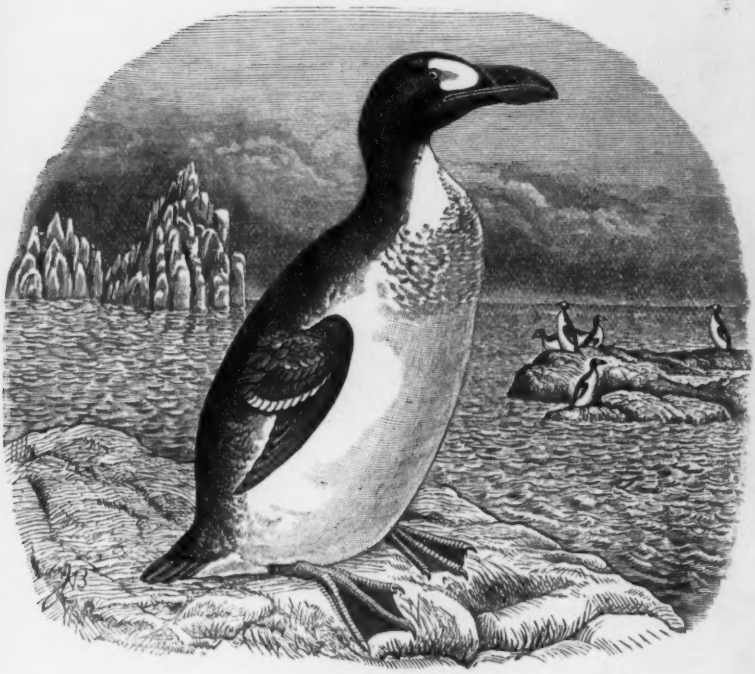

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CONTENTS OF VOLUME X.

NUMBER I.

PAGE

SUMMER BIRDS OF PRINCE EDWARD ISLAND. By *Jonathan Dwight, Jr.* 1

NOTES ON CERTAIN WASHINGTON AND BRITISH COLUMBIA BIRDS. By *Samuel N. Rhoads.* 16

OBSERVATIONS ON THE KNOT (*Tringa canutus*). By *George H. Mackay.* 25

SUMMER BIRDS OF INDIANA AND CLEARFIELD COUNTIES, PENNSYLVANIA. By *W. E. Clyde Todd.* 35

DESCRIPTION OF A NEW JUNCO FROM CALIFORNIA. By *Leverett M. Loomis.* 47

ADDITIONS TO THE LIST OF MANITOBAN BIRDS. By *Ernest E. Thompson.* 49

ON THE GENUS *Pitta* VIEILLOT. By *D. G. Elliot.* 51

THE NESTING OF THE BLACK DUCK ON PLUM ISLAND. By *Charles Slover Allen.* 53

FIFTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF NORTH AMERICAN BIRDS. 59

TENTH CONGRESS OF THE AMERICAN ORNITHOLOGISTS' UNION. . 63

RECENT LITERATURE.

The British Museum Catalogue of the Picariæ, 66; Cory's 'Catalogue of West Indian Birds,' 69; Dixon's 'The Migration of Birds,' 70; Torrey's 'The Foot-path Way,' 74; Ornithological Report of the Canadian Institute, 74; Publications Received, 75.

GENERAL NOTES.

Larus argentatus smithsonianus, 76; *Branta canadensis*, 77; *Branta bernicla*, 77; Notes on the American Bittern, 77; *Tringa alpina* on Long Island, New York, 78; The Migration of *Numenius borealis* in Massachusetts in 1892, 79; *Charadrius squatarola*, 79; The Migration of *Charadrius dominicus* in Massachusetts in 1892, 79; Black Vulture in Maine, 82; Some Additional Eastern Records of Swainson's Hawk (*Buteo swainsoni*), 82; Swainson's Hawk in the East, 83; The Nest of *Panyptila cayenensis*, 84; Sharp-tailed Finches of the New Jersey Coast, 85; Capture of

the Louisiana Tanager at New Haven, Connecticut, 86; *Dendroica kirtlandi* in Minnesota, 86; Occurrence and Breeding of the Kentucky Warbler in Connecticut, 86; *Heleodytes* vs. *Campylorhynchus*, 86; *Salpinctes obsoletus* in Washington and Oregon, 87; The Carolina Wren in the Lower Hudson Valley, 87; *Sitta canadensis* appearing in Numbers in the District of Columbia, 88; Notes from Connecticut, 89; On the Occurrence of Three Rare Birds on Long Island, New York, 90; Rare Birds near Washington, D. C., 91.

CORRESPONDENCE.

A Neglected Branch of Ornithology, 93.

NOTES AND NEWS.

Obituary, Professor John Strong Newberry, 95; Dr. Philo R. Hoy, 95. A. O. U. By-Laws and Rules, 96; British Ornithologists' Club, 96; A New Journal, 96.

NUMBER II.

THE GEOGRAPHICAL ORIGIN AND DISTRIBUTION OF NORTH AMERICAN BIRDS, CONSIDERED IN RELATION TO FAUNAL AREAS OF NORTH AMERICA. By *J. A. Allen*. 97

NOTES ON THE PLUMAGE OF SOME BIRDS FROM UPPER SOUTH CAROLINA. By *Leverett M. Loomis*. 151

FURTHER NOTES ON THE EVENING GROSBEAK. By *Amos W. Butler*. 155

THE CHIONIDIDÆ. By *R. W. Shufeldt*. 158

OUR SCOTERS. By *G. Trumbull*. 165

OBSERVATIONS ON THE BIRDS OF JAMAICA, WEST INDIES. II. A LIST OF THE BIRDS RECORDED FROM THE ISLAND, WITH ANNOTATIONS. By *W. E. D. Scott*. 177

SUPPLEMENTARY REMARKS ON THE GENUS *Pitta*. By *L. Stejneger*. 181

VIEILLOT'S 'ANALYSE' AND BUFFON'S 'BRÈVE.' By *D. G. Elliot*. . 184

RECENT LITERATURE.

Keeler on the 'Evolution of the Colors of North American Land Birds,' 189; Beddard's 'Animal Coloration,' 195; 'Our Hawks and Owls in their Relation to Agriculture,' 199; Bolles's 'Chronicles,' 201; Foster's 'Bibliography of the Ornithological Writings of George N. Lawrence,' 202; Publications Received, 203.

GENERAL NOTES.

Alle alle in Virginia, 204; The American Woodcock (*Philohela minor*) in Great Numbers at Mount Pleasant, South Carolina, 204; Gambel's Partridge at San Bernardino, California, 204; *Antrostomus vociferus* in South Carolina in Winter, 205; The Horned Lark (*Otocoris alpestris*) near Charleston, South Carolina, 205; *Acanthis linaria* in Alabama, 205; The Field Sparrow Wintering in Massachusetts, 205; *Junco ridgwayi* in Colorado, 205; Unusual Habits of Lincoln's Sparrow, 206; Wintering of *Regulus calendula* at Washington, D. C., 206; Notes on some Connecticut Birds, 206; Winter Birds in Connecticut, 207; Notes on *Helminthophila chrysoptera*, *pinus*, *leucobronchialis*, and *lawrencei* in Connecticut, 208; Correction, 209; The Occurrence in Summer of Certain Warblers at Beaver, Pennsylvania, 209.

CORRESPONDENCE.

"A Neglected Branch of Ornithology," 210.

NOTES AND NEWS.

The Audubon Monument, 211; Captain Bendire's Work, 211; Pterylography of the Gallinæ, 211; Mr. Chapman in Trinidad, 211; A New Edition of 'Lewis and Clarke,' 212; 'The Birds of Montreal,' 212; A. O. U. Membership Lists, 212.

NUMBER III.

A Hybrid Sparrow (*Zonotrichia albicollis* + *Junco hyemalis*). By *Witmer Stone*. 213
Description of a New Hummingbird from Northern Mexico. By *William Brewster*. 214
Description of a New Marsh Wren, with Critical Notes on *Cistothorus marianæ* Scott. By *William Brewster*. . . . 215
A List of the Birds collected on the Island of Tobago, West Indies, by W. W. Brown, Jr., during April and May, 1892. By *Charles B. Cory*. 220
Birds observed on Mackinac Island, Michigan, during the Summers of 1889, 1890, and 1891. By *Stewart Edward White*. 221
A Brood of Young Flickers (*Colaptes auratus*) and how they were Fed. By *William Brewster*. 231
On the Occurrence of certain Birds in British Columbia. By *William Brewster*. 236
The *Vireo huttoni* Group, with Description of a New Race from Vancouver Island. By *Samuel N. Rhoads*. 238

SOME ADDITIONS TO THE AVIFAUNA OF NORTH CAROLINA, WITH NOTES ON SOME OTHER SPECIES. By *C. S. Brimley*. . . 241
FLY LINES. By *George H. Mackay*. 245
THE GEOGRAPHICAL DISTRIBUTION OF THE GENUS *Megascops* IN NORTH AMERICA. By *Edwin M. Hasbrouck*. 250
BIRD NOTES FROM LONG ISLAND. By *William Dutcher*. . . 265
NOTES ON SOME RARE BIRDS IN THE COLLECTION OF THE LONG ISLAND HISTORICAL SOCIETY. By *William Dutcher*. . . 267
NOTES ON TWO COSTA RICAN BIRDS. By *George K. Cherrie*. . 278
NOTES ON THE TRUNK SKELETON OF A HYBRID GROUSE. By *R. W. Shufeldt*. 281

RECENT LITERATURE.

Ornithology of the Death Valley Expedition, 285; Hatch's 'Notes on the Birds of Minnesota,' 288; Rhoads's Observations on British Columbia and Washington Birds, 290; Minor Ornithological Publications, 292; Publications Received, 297.

GENERAL NOTES.

Notes on Cassin's Auklet, 298; Behavior of a Sandhill Crane, 300; *Ionornis martinica* in Kansas, 300; *Pseudogryphus californianus*, 300; *Cathartes aura* in Chenango County, New York, 301; *Strix pratincola* in New York, 301; Short-eared Owl Nesting on Plum Island, New York, 301; *Xanthocephalus xanthocephalus* and *Spiza americana* in Maine, 302; the Ipswich Sparrow (*Ammodramus princeps*) on the Coast of Georgia, 302; A Hybrid Tanager, 302; The Summer Tanager in Connecticut, 303; Cape May Warbler at Shelter Island, New York, 303; Nesting Habits of *Galeoscoptes carolinensis*, 303; Connecticut Notes, 305; Correction, 305; The Faunal Position of Lower California, 305.

NOTES AND NEWS.

Obituary, Jenness Richardson, 307; Unveiling of the Audubon Monument, 308; Prof. Newton's 'Dictionary of Birds,' 308; Mr. Chapman in Trinidad, 308.

NUMBER IV.

ON THE CHANGES OF PLUMAGE IN THE BOBOLINK (*Dolichonyx oryzivorus*). By *Frank M. Chapman* 309
THE FOOD OF HUMMINGBIRDS. By *Frederic A. Lucas* . . . 311
ORNITHOLOGY AT THE WORLD'S FAIR. By *Frank M. Chapman* . 315

THE HUDSONIAN CHICKADEE AND ITS ALLIES, WITH REMARKS ON THE GEOGRAPHIC DISTRIBUTION OF BIRD RACES IN BOREAL AMERICA. By *Samuel N. Rhoads* 321

OBSERVATIONS ON THE BREEDING HABITS OF *Larus atricilla* IN MASSACHUSETTS. By *George H. Mackay* 333

ADDITIONAL NOTES ON THE BIRDS OF THE SUWANEE RIVER. By *Arthur T. Wayne* 336

OBSERVATIONS ON THE BIRDS OF JAMAICA, WEST INDIES. II. A LIST OF THE BIRDS RECORDED FROM THE ISLAND, WITH ANNOTATIONS. By *W. E. D. Scott* 339

PRELIMINARY DESCRIPTIONS OF ONE NEW SPECIES AND TWO NEW SUBSPECIES OF BIRDS FROM THE ISLAND OF TRINIDAD. By *Frank M. Chapman* 342

RECENT LITERATURE.

Shufeldt on Fossil Birds from Oregon, 343; Shufeldt on *Icthyornis*, and on the Classification of the Longipennes, 345; The Affinities of Hummingbirds and Swifts, 345; Ridgway on New Birds from Mexico and the West Indies, 346; Stejneger on Japanese Birds, 346; Food Habits of Birds, 347; Hasbrouck on 'Evolution and Dichromatism in the Genus *Megascops*,' 347; Cook's 'Birds of Michigan,' 351; Averill's List of the Birds of Bridgeport, Conn., 352; Summer Birds of Greene County, Pa., 353; Nutting's Zoölogical Explorations on the Lower Saskatchewan River, 353; A New List of Chilian Birds, 354; Berlepsch and Peters on Birds from Curaçao, 355; Hartert on Birds from Aruba, Bonaire and Curaçao, 355; Newton's 'Dictionary of Birds,' 357; Publications Received, 360.

GENERAL NOTES.

Capture of the Black-capped Petrel Inland in Virginia, 361; *Fregata aquila* in California, 362; the Cinnamon Teal (*Anas cyanoptera*) in Florida, 362; an Additional Specimen of the Labrador Duck, 363; Capture of Another *Ardetta neoxena* at Toronto, Ontario, 363; Another *Megascops flammeolus* for Colorado, 364; the Road-runner in Kansas, 364; Two Corrections, 365; the Number of Ribs in *Cypseloides*, 365; an Attractive Addition to the Avifauna of the United States—*Icterus gularis yucatanensis* von Berlepsch, 366; Behavior of a Summer Tanager, 367; Breeding of the Rough-winged Swallow at Shelter Island, New York, 369; *Cæreba* versus *Certhiola*, 369; Stray Notes from the Vicinity of Muskeget Island, Massachusetts, 370; Notes on some Connecticut Birds, 371; Connecticut Notes, 371; Rare Birds near Baltimore, Maryland, 371.

CORRESPONDENCE.

The Evolution of the Colors of North American Land Birds—a Reply to Criticism, 373; Birds of British Columbia and Washington, 380.

NOTES AND NEWS.

Obituary, Austin F. Park, 384; Benjamin F. Goss, 385; Charles F. Adams, 385; Eleventh Congress of the A. O. U., 386; a 'Congress on Birds,' 386; Nehrling's 'Birds of Song and Beauty,' 387; Postage on Natural History Specimens, 388; 'Novitates Zoologicæ,' 388; 'Avifauna of Laysan,' 388.

INDEX 389
ERRATA 407

TITLE PAGE AND CONTENTS . . . . . i–viii
OFFICERS AND COMMITTEES OF THE A. O. U. ix
MEMBERS OF THE A. O. U. x

PLATES IN VOLUME X.

I. Black Duck's Nest. 1
II. Black Duck Group. 1
III. Map of North American Region, showing Subregions and Provinces. 97
IV. Map, showing the Subprovinces of the Warm Temperate. . 97
V. Bills of *Oidemia deglandi*. 176
VI. Hybrid, *Junco* + *Zonotrichia*. 213
VI.*a* Map, showing the Distribution of the North American Forms of *Megascops*. 264
VI.*b* Map, showing the Distribution of the Central American Forms of *Megascops*. 264
VII. Bobolink (*Dolichonyx oryzivorus*) 309

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BARNARD, JOB, 500 5th St., N. W., Washington, D. C.....1886
BARNES, Hon. R. M., Lacon, Ill.....1889
BARNEY, EVERETT H., Springfield, Mass.....1891
BARRE, WILL DE LA, 1301 7th St., Minneapolis, Minn.....1891
BASKETT, J. N., Mexico, Mo.....1892
BAUR, Dr. G., Univ. of Chicago, Chicago, Ills.....1892
BEAL, F. E. L., 1414 Corcoran St., Washington, D. C.....1887
BEAN, J. BELLFIELD, Nicollet, Minn.....1892
BEARD, DANIEL C., 110 Fifth Ave., New York City.....1887
BEHR, EDWARD A., 428 Henry St., Brooklyn, N. Y.....1892
BELL, JAMES P. H., Gainesville, Fla.....1889
BELLOWS, ED. D., 215½ 4th St., Jersey City, N. J.....1889
BENNER, FRANKLIN, 110 2d St., North Minneapolis, Minn.....1883
BENNERS, GEO. B., 122 Walnut St., Philadelphia, Pa.....1889
BENSON, Lieut. H. C., U. S. A., The Presidio, San Francisco, Cala..1886
BENT, ARTHUR CLEVELAND, Plymouth, Mass.....1889
BERGTOLD, Dr. W. H., 56 Allen St., Buffalo, N. Y.....1889
BERIER, DELAGNEL, Bay Ridge, Kings Co., N. Y.....1885
BILL, CHARLES, Springfield, Mass.....1889
BISHOP, Dr. LOUIS B., 77 Whitney Ave, New Haven, Conn.....1885

BOARDMAN, GEORGE A., Calais, Maine.....1883
BOGERT, M. T., Flushing, Queens Co., N. Y.....1889
BOIES, A. H., Hudson, Mich.....1890
BOLLES, FRANK, Harvard College, Cambridge, Mass.....1889
BOND, FRANK, Cheyenne, Wyoming..... 1887
BOND, HARRY L., Sioux City, Iowa.....1890
BOWDISH, B. S., Tallapoosa, Ga.....1890
BOWLES, J. H., Ponkapog, Mass.....1891
BRADFORD, L. M. B., Providence, R. I.....1889
BRANDRETH, FRANKLIN, Sing Sing, N. Y.....1889
BRIMLEY, C. S., Raleigh, N. C.....1888
BROCKUNIER, SAMUEL H., Wheeling, West Virginia.....1889
BROOKS, EARLE A., French Creek, Upshur Co., W. Va.....1892
BROWN, A. D., Pipestone, Minn.....1891
BROWN, EDWARD J., 820 20th St. N. W., Washington, D. C.....1891
BROWN, HERBERT, Tucson, Arizona.....1885
BROWN, HUBERT H., 22 Collier St., Toronto, Ontario 1889
BROWN, JOHN CLIFFORD, 85 Vaughan St., Portland, Maine.....1888
BROWN, WILMOT W., Jr., Somerville, Mass.....1892
BROWNE, FRANCIS CHARLES, Framingham, Mass.....1883
BULLEY, REGINALD H., Canton, Ohio.....1889
BURNS, FRANK L., Berwyn, Chester Co., Pa.....1891
BUTLER, AMOS W., Brookville, Ind.....1885
CAIRNS, JOHN S., Weaverville, N. C.....1889
CAMPBELL, HARVEY C., Lansingburg, Rens. Co., N. Y 1890
CARRUTH, CHARLES THEODORE, 119 Milk St., Boston, ...1891
CASE, CLIFFORD M., 54 Babcock St., Hartford, Conn.....1892
CAULK, WM. B., Terre Haute, Ind..... 1891
CHAMBERLAIN, C. W., 51 Lincoln St., Boston, Mass.....1885
CHASE, VIRGINIUS H., Wady Petra, Ills.....1892
CHERRIE, GEORGE K., Museo Nacional, San José, Costa Rica.....1891
CHURCHILL, GEORGE B., 912 Spruce St., Philadelphia, Pa.....1890
CLARK, HUBERT LYMAN, 3922 5th Ave., Pittsburgh, Pa.....1886
CLARK, J. N., Saybrook, Conn.....1885
CLARKE, Prof. S. F., Williamstown, Mass.....1890
CLUTE, WILLARD N., 11 Jarvis St., Binghamton, N. Y.....1889
COALE, H. K., 131 Wabash Ave., Chicago, Ill.....1883
COBB, Miss JULIAETTE J., West Brookfield, Mass.....1892
COLBURN, A. E., 738 Broadway, New York City.....1891
COLBURN, W. W., Springfield, Mass.....1889
COLLINS, Capt. J. W., Smiths. Inst., Washington, D. C.....1888
COLT, WILLIAM C., 59 Pleasant St., Worcester, Mass.....1892
COMEAU, NAPOLEON A., Godbout, P. Q.....1885
CONKLIN, CHARLES E., Roslyn, N. Y.....1892
CONKLIN, Dr. WILLIAM A., 10th Ave. cor. 187th St., New York City.1885
COOK, Prof. CHARLES B., Agricultural College P. O., Mich.....1890
COOMBS, FRANK E., Natick, Mass.....1890

COPE, ALBAN, Germantown, Pa.....1885
COPE, FRANCIS R., Jr., Germantown, Pa.....1892
COPELAND, A. M., Springfield, Mass.....1889
CORNING, ERASTUS, Jr., Albany, N. Y.....1891
COUES, ELLIOTT BAIRD, care of Dr. E. Coues, Smiths. Inst., Washington, D. C.....1886
COUES, WILLIAM PEARCE, 14 Ash St., Cambridge, Mass.....1888
CRAMPTON, H. E., Jr., 256 W. 121st St., New York City.....1891
CRANDALL, C. W., Woodside, Queen's Co., N. Y.....1891
CULYER, Col. JOHN Y., Room 150, Potter Building, New York City.1890
DAENZER, CARL, 13 North 3d St., St. Louis, Mo.....1888
DAFFIN, W. H., 938 Silver St., Philadelphia, Pa.....1892
DAGGETT, FRANK S., Duluth, Minn.....1889
DANA, ROY, Warren, Ohio.....1889
DAVIS, GEORGE A., Mexico, N. Y.....1890
DAVISON, J. L., Lockport, Niagara Co., N. Y.....1885
DELAFIELD, JOSEPH L., 475 5th Ave., New York City.....1888
DENNE, DAVID, 104 St. Francois St., Montreal.....1890
DETWILLER, Dr. JNO. W., Bethlehem, Pa.....1891
DEWEY, MARGARET, 108 Pearl St., Springfield, Mass.....1892
DICKINSON, EDWIN, Springfield, Mass.....1885
DICKINSON, W. S., Tarpon Springs, Fla.....1891
DILLE, FREDERIC M , 806 Boston Bldg., Denver, Colo.....1892
DIXON, FREDERIC J., Hackensack, N. J.....1891
DOUGHERTY, CAPT. W. E., U. S. A., Angel Island, Cala.....1890
DOUGLASS, BERT H., Burlington, Kansas.....1890
DUNBAR, W. LINFRED, Public Library, Bridgeport, Conn.....1892
DURFEE, OWEN, Box 125, Fall River, Mass.....1887
DUTCHER, B. H., 525 Manhattan Ave., New York City.....1886
DYCHE, Prof. L. L., Lawrence, Kansas.....1886
EAMES, Dr. EDWIN H., Bridgeport, Conn.....1888
EASTMAN, HARRY D., Framingham, Mass.....1891
EATON, ALVAH A., Riverdale, Cala.....1890
EDDY, N. A., 615 North Grant St., Bay City, Michigan.....1885
EDGAR, NEWBOLD, 28 E. 39th St., New York City.....1891
EDSON, JOHN M., New Whatcom, Washington.....1886
ELDON, CHARLES H., Williamsport, Pa.....1891
ELROD, Prof. M. J., Illinois Wesleyan Univ., Bloomington, Ills.....1892
EMERSON, W. OTTO, Haywards, Cala.....1885
EVANS, EVAN M., Englewood, N. J.....1888
EVANS, SAMUEL C., JR., Riverside, Cala.....1889
EVERMANN, Prof. BARTON W., U. S. Fish Commission, Washington, D. C.....1883
FAIRBANKS, Hon. FRANKLIN, St. Johnsbury, Vt.....1885
FANNIN, JOHN, Provincial Museum, Victoria, B. C.....1888
FARLEY, JOHN A., Newton, Mass.....1892
FAXON, WALTER, Mus. Comp. Zoöl., Cambridge, Mass.....1891

FERNALD, ROBERT H., Orono, Me.....1890
FIGGINS, J. D., Kensington, Md.....1889
FISHER, WILLARD J., Medway, Mass.....1892
FISHER, WILLIAM HUBBELL, 12 Wiggins Block, Cincinnati, Ohio.....1883
FLINT, H. W., Yale National Bank, New Haven, Conn.....1888
FLINT, WILLIAM R., Madera, Fresno Co., Cala.....1890
FLOYD, HARRY WEBB, 164 S. Elliott Place, Brooklyn, N. Y.....1892
FORBUSH, EDWARD H., Malden, Mass.....1887
FOWLER, Capt. J. L., 2d Calvary U. S. A., Fort Bowie, Ariz.....1892
FOX, Dr. WILLIAM. H., 1826 Jefferson Place, Washington, D. C.....1883
FUERTES, LOUIS AGASSIZ, Ithaca, N. Y.....1891
GALE, DENIS, Gold Hill, Boulder Co., Colorado.....1886
GAULT, B. T., Glen Ellyn, DuPage Co., Ill.....1885
GESNER, Rev. A. H., Sing Sing, N. Y.....1885
GIBSON, LANGDON, Flushing, N. Y.....1887
GILBERT, CARLETON, 1155 Grenshaw St., Chicago, Ill.....1889
GILBERT, CHARLES H., Palo Alto, Cala.....1892
GOODALE, JOSEPH LINCOLN, 67 Sparks St., Cambridge, Mass.....1885
GORDON, THEODORE, Savannah, Ga.....1891
GOSS, B. F., Pewaukee, Waukesha Co., Wis.....1883
GOULD, JOSEPH E., 281½ North High St , Columbus, Ohio.....1889
GRANGER, WALTER W., Am. Mus. Nat. Hist., New York City.....1891
GRANT, JNO. B., 233 Madison Ave., New York City.....1890
GREEN, MORRIS M., 410 Graves St., Syracuse, N. Y.....1886
GREENE, I. C., Amherst, Mass.....1891
GREGG, Dr. WILLIAM H., 143 West 21st St., New York City.....1883
HALES, HENRY, Ridgewood, N. J.....1890
HAMFELDT, A., Ottawa, Ills.....1892
HANMER, C. C., Burnside, Conn.....1888
HARGITT, CHARLES W., 904 E. Genesee St., Syracuse, N. Y.....1892
HARDY, MANLY, Brewer, Maine.....1883
HARTE, CHARLES R., Columbia College, New York City.....1890
HARTZELL, Prof. JAMES C., JR., Orangeburg, S. C.. 1892
HASBROUCK, EDWIN M., 1303 Corcoran St., Washington, D. C.....1887
HAWLEY, A. H., Vineland, N. J.....1886
HAZARD, R. G., 2d, Peace Dale, R. I.....1885
HAZZARD, Dr. T. L., Alleghany, Pa.....1891
HEDGES, CHARLES F., New Haven, Conn.....1891
HEIMSTREET, Dr. T. B., 14 Division St., Troy, N. Y.....1888
HELME, ARTHUR H., Miller's Place, Suffolk Co., N. Y.....1888
HENDRICKSON, W. F., 860 Broadway, New York City.....1885
HENNING, CARL FRITZ, Boone, Iowa.....1892
HICKS, BENJAMIN D., Old Westbury, N. Y.....1892
HICKS, HENRY, Westbury Station, Queens Co., N. Y.....1888
HIGGINS, HENRY C., Cincinnatus, N. Y.....1892
HINE, Mrs. JANE L., Sedan, Ind.....1890
HITCHCOCK, FRANK HENRY, Dept. of Agriculture, Washington, D.C. 1891

HOADLEY, Dr. FREDERIC H., 9 W. 30th St., New York City.....1891
HOAG, BENJAMIN, Stephentown, N. Y.....1892
HOLBROOK, Judge S. T., Norwich, Conn.....1885
HOOPES, JOSIAH, West Chester, Pa.....1889
HORNADAY, W. T., 42 Niagara St., Buffalo, N. Y.....1888
HOUGH, ROMEYN B., Lowville, N. Y.....1883
HOWELL, ARTHUR H., 212 Madison St., Brooklyn, N. Y.....1889
HOYLE, CHARLES E., West Millbury, Mass.....1889
HOYT, F. R., Watkins, N. Y.....1891
HOYT, WILLIAM H., Stamford, Conn.....1888
HOWE, C. P., Waukesha, Wis.....1891
HUBBARD, Mrs. SARA A., 39 33rd St., Chicago, Ill.....1891
HUGHES, Dr. WILLIAM E., 3726 Baring St., Philadelphia, Pa.....1891
HULL, WALTER B., Box 47, Milwaukee, Wis.....1889
HURD, THEODORE D., Riverside, Cala.....1890
HVOSLEF, Dr. J. C., Lanesboro, Minn.....1885
HYATT, Miss MARY, Stanfordville, N. Y.....1891
INGALLS, CHARLES E., East Templeton, Mass.....1885
INGERSOLL, ALBERT M., 816 5th St., San Diego, Cala.....1885
INGRAHAM, D. P., Elmira, N. Y.....1889
ISHAM, C. B., Am. Mus. Nat. Hist., New York City.....1891
JACKSON, THOMAS H., West Chester, Pa.....1888
JACOBS, J. WARREN, Waynesburg, Pa.....1889
JAMES, HOWARD K., Rockville, Conn.....1888
JEFFRIES, WILLIAM AUGUSTUS, 78 Devonshire St., Boston, Mass.....1883
JENKS, Prof. J. W. P., 62 George St., Providence, R. I.....1888
JESURUN, Dr. MORTIMER, Douglas, Wyoming.....1890
JOHNSON, ALBERT I., Hull, Iowa.....1885
JOHNSON, FRANK E., Parkville, Kings Co., N. Y.....1888
JOHNSON, FREDERIC O., Los Angeles, Cala.....1888
JOHNSTON, Dr. A. D., Allegheny City, Pa.....1891
JONES, LYNDS, Oberlin, Ohio.....1888
JONES, Prof. MARCUS E., Salt Lake City, Utah.....1890
JORDAN, A. H. B., Willsborough, Essex Co., N. Y.....1888
JORDAN, DAVID STARR, Leland Stanford, Jr., Univ., Menlo Park, Cala.....1885
JOUY, P. L., Smiths. Inst., Washington, D. C.....1883
KEELER, CHARLES A., Berkeley, Alameda Co., Cala.....1889
KELLER, CLYDE L., 318 Exchg. Blk., Salem, Oregon.....1892
KELLOGG, VERNON L., Lawrence, Kansas.....1888
KENDALL, W. C., U. S. Fish Commission, Washington, D. C.....1889
KENNARD, FREDERIC HEDGE, Brookline, Mass.....1892
KEYSER, LEANDER S., Springfield, Ohio.....1891
KING, GEORGE GORDON, Newport, R. I.....1888
KIRKPATRICK, H. C., Meadville, Pa.....1891
KIRKWOOD, F. C., 115 Concord St., Baltimore, Md.....1892
KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C.....1883

KOCH, Prof. AUGUST, Williamsport, Pa.....1891
KOCH, FREDERIC W., Twin Oaks, San Diego Co., Cala.....1891
KOHN, GUSTAVE, 14 Carondelet St., New Orleans, La.....1886
KOUMLY, Rev. PIRMINE M., Seneca, Kas.....1892
LADD, SAMUEL B., West Chester, Pa.....1889
LAMB, Prof. ELI M., Friends' High School, Baltimore, Md.....1891
LANGDON, EDWIN, Central National Bank, New York City.....1891
LANO, ALBERT, Madison, Minn.....1890
LANTZ, Prof. D. E., Manhattan, Kansas.....1885
LAWRENCE, ROBERT B., Mills Building, New York City.....1883
LAWRENCE, ROBERT HOE, Duarte, Cala.....1890
LEVINGS, GLENN V. B., 117 W. 58th St., New York City.....1892
LEWIS, E. G., Hartford, Conn.....1888
LEWIS, WILLIAM H., Pawtucket, R. I.....1890
LEWIS, JOHN B., Eubanks, Pulaski Co., Ky.....1890
LINSKILL, DAVID J., Plymouth, Pa.....1891
LLOYD, WILLIAM, Brownsville, Texas.....1885
LOCKWOOD, Dr. SAMUEL, Freehold, N. J.....1890
LONG, H. B., Lake View, Mass.....1889
LOOMIS, JOHN A., Paint Rock, Concho Co., Texas.....1887
LORING, J. ALDEN, Owego, N. Y.....1889
MACDOUGALL, GEO. R., 88 Wall St., New York City.....1890
MACGILLIVRAY, ALEXANDER D., Cornell Univ., Ithaca, N. Y.....1890
MACKAY, Prof. A. H., Halifax, Nova Scotia.....1885
MACKAY, GEORGE H., Nantucket, Mass.....1890
MACOUN, Prof. JOHN, Geol. and Nat. Hist. Surv., Ottawa, Ontario..1883
MARCY, Prof. OLIVER, Evanston, Ills.....1892
MCCORMACK, F. W., Leighton, Ala.....1891
MCGREGOR, R. C., 2847 Champa St., Denver, Col.....1889
MAITLAND, ROBERT L., 70 Broad St., New York City.....1889
MALI, CHARLES M., 329 Broadway, New York City.....1889
MARSHALL, ALFRED, 59 South Canal St., Chicago, Ills.....1886
MASON, EDWARD CAMPBELL, 377 Main St. Buffalo, N. Y.....1888
MELZER, JAMES P., Milford, N. H.....1891
MERRIAM, FLORENCE A., Locust Grove, Lewis Co., N. Y.....1885
MERRILL, HARRY, Bangor, Maine.....1883
METCALFE, WILLIAM C., 21 Cortlandt St., New York City.....1886
MILLER, GERRIT SMITH, JR., 120 Brattle St., Cambridge, Mass.....1886
MILLER, Mrs. OLIVE THORNE, 244 Macon St., Brooklyn, N. Y.....1887
MONTGOMERY, THOMAS H., JR., West Chester, Pa.....1891
MOORE, J. PERCY, 3740 Powelton Ave., Philadelphia, Pa.....1886
MOORE, Dr. H. D., New Lexington, Pa.....1891
MORCOM, G. FREAN, 870 North Park Ave., Chicago, Ill.....1886
MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa.....1887
MORRIS, ROBERT O., Springfield, Mass.....1888
MORRISON, GEORGE A., Fox Lake, Wis.....1891
MORTIMER, BENJAMIN, 348 Lafayette Ave., Brooklyn, N. Y.....1888

MURDOCH, JOHN, Middleboro, Mass.....1883
NACHTRIEB, HENRY F., Univ. of Minn., Minneapolis, Minn.....1892
NASH, H. W., Pueblo, Colorado.....1892
NICHOLAS, Dr. GEORGE L., North Brother Island, New York City....1888
NICHOLS, HOWARD GARDNER, Newton, Mass.....1892
NICHOLS, J. M., Greene, Maine.....1890
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa.....1886
NORTON, ARTHUR H., Westbrook, Maine.....1890
NORTON, RICHARD, Cambridge, Mass.....1888
OBERHOLSER, HARRY C., Wooster, Ohio.....1888
OLDFIELD, W. A., Port Sanilac, Mich.....1891
OLDRIGHT, CHARLES D., Austin, Texas.....1890
ONG, PLUMMER L., Milan, Sullivan Co., Mo.....1888
ORTH, GEORGE S., 406 S. Highland Ave., Pittsburgh, Pa.....1892
OSBORN, Rev. WILLIAM, Golden, Col.....1890
PAINE, AUGUSTUS G., Jr., Room 60, Times Bldg., New York City...1886
PALMER, E. L., New Haven, Conn.....1891
PALMER, THEODORE S., Dept. of Agriculture, Washington, D. C....1888
PALMER, WM., U. S. Nat. Mus., Washington, D. C.....1888
PANNEPACKER, D. E., 2550 North 12th St., Philadelphia, Pa.....1888
PARK, AUSTIN F., 31 Boardman Building, Troy, N. Y.....1885
PARK, J. T., Warner, Tenn.....1890
PEABODY, Rev. P. B., Owatonna, Minn.....1891
PEABODY, WILLIAM RODMAN, Cambridge, Mass.....1890
PEACOCK, W. F., Marysville, Cala.....1888
PEARSON, T. GILBERT, Archer, Fla.....1891
PENNOCK, C. J., Kennett Sq., Chester Co., Pa.....1888
PERKINS, CHARLES E., Hartford, Conn.....1888
PERNOT, E. A., Corvallis, Oregon.....1891
PETERSON, J. P., Luck, Wis.....1885
PHILLIPS, A. H., 77 Biological Laboratory, Princeton, N. J.....1891
PIERCE, A. K., Renovo, Pa.....1891
PIERS, HARRY, Willow Park, Halifax, N. S.....1891
PLEASANTS, J. H., Jr., 606 Cathedral St., Baltimore, Md.....1888
POPENOE, Prof. E. A., Manhattan, Kan.....1886
POSSON, NEIL F., Medina, N. Y.....1890
PRAEGER, WILLIAM E., Keokuk, Iowa.....1892
PRATT, W. E., Lake Forest, Ill.....1890
PREBLE, EDWARD A., Dept. of Agriculture, Washington, D. C.....1892
PRENTISS, D. W., JR., Washington, D. C.....1890
PRILL, Dr. A. G., Sodaville, Oregon.....1890
PRIME, Rev. WENDELL, 38 Park Row, New York City.....1889
RAGSDALE, G. H., Gainesville, Texas.....1885
RAINE, WALTER, 181 Bleeker St., Toronto, Ontario.....1889
RALPH, Dr. W. L., 26 Court St., Utica, N. Y.....1888
RAUB, Dr. M. W., Lancaster, Pa.....1890
RATHBUN, FRANK R., 40 Franklin St., Auburn, N. Y.....1883

RAWSON, CALVIN L., Norwich, Conn.....1885
REDINGTON, ALFRED P., 23 Second St., San Francisco, Cala.....1890
REED, CHARLES K., Worcester, Mass.....1890
REED, J. HARRIS, Beverly, N. J.....1890
REISER, Rev. F., Marysville, Cala.....1892
RHOADS, SAMUEL N., Haddonfield, N. J.....1885
RICE, FRANK L., 47 S Canal St., Chicago, Ills.....1886
RICHARDS, JOHN BION, 8 Barnaby St., Fall River, Mass.....1888
RICHARDSON, JENNESS, Am. Mus. Nat. Hist., New York City.....1888
RICHARDSON, W. M., Am. Mus. Nat. Hist., New York City.....1891
RICHMOND, CHARLES W., Bluefields, Nicaragua.....1888
RIDGWAY, JOHN L., U. S. Geol. Surv., Washington. D. C.....1890
RIECKER, ERNST, 900 South 4th St., St. Louis, Mo.....1888
RIKER, C. B., South Orange, N. J.....1885
RILEY, Prof. C. V., U. S. Entomologist, Washington, D. C.....1885
RIVES, Dr. WILLIAM C., 113 East 38th St., New York City.....1885
ROBBINS, WILLIAM A., 178 Garfield Place, Brooklyn, N. Y.....1888
ROBERTS, GEORGE W., West Chester, Pa.....1891
ROBERTS, W. F., 1421 G St., N. W., Washington, D. C.....1888
RODDY, Prof. H. JUSTIN, Millersville, Pa.....1891
ROOSEVELT, Hon. THEODORE, Oyster Bay, Queens Co., N. Y.....1888
ROWLAND, THOMAS, 182 6th Ave., New York City.....1890
ROWLEY, J., JR., Am. Mus. Nat. Hist., New York City.....1889
RUSSELL, GEORGE C., 144 West 7th St., Erie, Pa.....1888
RUSSELL, ROY, Kokomo, Indiana.....1891
SAGE, HENRY M., Albany, N. Y.....1885
SARGENT, HARRY B., Niagara Falls, N. Y.....1892
SCHLEGEL, MATILDE, East Aurora, N. Y.....1889
SCHURR. THEODORE A., Pittsfield, Mass.....1888
SCHWAB, Rev. L. H., 101 Lawrence St., New York City.....1892
SCOTT, W. L., 74 Sparks St., Ottawa, Ontario.....1883
SCROGGS, Dr. G. A., Beaver, Pa.....1891
SEE, ABRAM W., Arlington, N. J.....1888
SEITER, PHILIP J., Bridgeport, Ala.....1888
SHEPPARD, EDWIN, Acad. Nat. Sci., Philadelphia, Pa.....1892
SHERRATT, W. J., 263 North 2d St., Philadelphia, Pa.....1891
SHORES, Dr. E. I., Soldiers' Home, Hampton, Va.....1883
SHORT, ERNEST H., Chili, N. Y.....1891
SLADE, JOHN A., 1134 Herkimer St., Brooklyn, N. Y.....1888
SMALL, FREDERIC L., Provincetown, Mass.....1891
SMITH, CLARENCE A., 30 W. Bijou St., Colorado Springs, Col.....1889
SMITH, HORACE G., JR., 2918 Lafayette St., Denver, Col.....1888
SMITH, Dr. HUGH M., 1248 New Jersey Ave., Washington, D. C.....1886
SMITH, JAMES E., East Killingly, Conn.....1889
SMITH, LUTHER H., Box 132, Pittsburgh, Pa.....1891
SMITH, PHILO W., JR., Mona House, St. Louis, Mo.....1890
SMITH, S. SIDNEY, 59 Wall St., New York City.....1888

SMYTH, ELLISON A., JR., Va. Agr. and Mech. Coll., Blacksburg, Va..1892
SORNBORGER, JEWELL D., Cambridge, Mass.....1888
SOUTHWICK, E. B., Arsenal Bldg., Central Park, New York City....1888
SOUTHWICK, WILLIAM C., Raritan, N. J.....1891
SPELMAN, HENRY MUNSON, 62 Sparks St., Cambridge, Mass.....1883
SPRAGUE, JOHN C., 38 Wall St., New York City.....1891
STANTON, Prof. J. Y., Bates College, Lewiston, Me.....1883
STEERE, Prof. J. B., Ann Arbor, Mich.....1890
STEPHENS, F., Santa Ysabel, San Diego Co., Cala.....1883
STOEY, W. W., Harrisburg, Pa.....1891
STONE, D. D., Lansing, N. Y.....1891
STREATOR, CLARK P., Garrettsville, O.....1889
STRODE, Dr. W. S., Lewistown, Ill.....1889
STRONG, REUBEN M., Wauwatosa, Wis.....1889
STUDER, JACOB H., P. O. Box 2417, New York City.....1888
SURBER, THADDEUS, White Sulphur Springs, West Va.....1890
SWALLOW, C. W., Willsburgh, Multuoma Co., Oregon.....1890
SWINBURNE, JOHN, Guernsey, England.....1887
TALBOT, D. H., Sioux City, Iowa.....1885
TATLOCK, JOHN, JR., Mutual Life Ins. Co., New York City.....1887
TAYLOR, ALEXANDER O'DRISCOLL, 124 Bellevue Ave., Newport, R. I..1888
TAYLOR, TRUMAN R., 90 William St., Rochester, N. Y.....1892
TEST, F. C., U. S. Nat. Mus., Washington, D. C.....1892
THOMPSON, ERNEST E., 86 Howard St., Toronto, Ontario.....1883
THOMPSON, FRANK J., Zoölogical Garden, Philadelphia, Pa.....1885
THOMSON, Prof. GEORGE S., Boulder, Colo.....1892
THORNE, Capt. PLATTE M., 22d Inf. U. S. A., Ft. Keogh, Montana..1885
THURBER, E. CARLETON, Alhambra, Cala.....1886
TODD, LOUIS M., Calais, Me.....1887
TODD, W. E. CLYDE, Dept. Agriculture, Washington, D. C.....1890
TOPPAN, GEORGE L., 138 Jackson St., Chicago, Ill.....1886
TORREY, BRADFORD, Wellesley Hills, Mass.....1883
TORTAT, W. R. M., Atchison, Kansas.....1890
TOWNSEND, C. H., Smiths. Inst., Washington, D. C.....1883
TREAT, WILLARD E., East Hartford, Conn.....1885
TREICHLER, Dr. A. C., Elizabethtown, Pa.....1891
TROMBLEY, JEROME, Petersburg, Mich.....1885
TROTTER, Dr. SPENCER, Swarthmore College, Swarthmore, Pa.....1888
TUTTLE, Dr. CARL, Berlin Heights, O.....1890
VAN CORTLANDT, Miss ANNE S., Croton-on-Hudson, N. Y.....1885
VAN RIPER, PAUL, Niles, Mich.....1891
VELIE, Dr. J. W., Academy of Sciences, Chicago, Ill.....1886
VERRILL, Prof. ALPHEUS H., 86 Whaley Ave., New Haven, Conn....1888
VILARO, Dr. JUAN, Havana Univ., Havana, Cuba.....1888
VOORHEES, CLARK G., 59 East 75th St., New York City.....1888
WAKEFIELD, J. R., Dedham, Mass.....1885
WALKER, Dr. R. L., Mansfield Valley, Pa.....1888

WARREN, Dr. B. H., West Chester, Pa.....1885
WARREN, O. B., Palmer, Mich.....1892
WEBSTER, FREDERIC S., 14 E. 42d St., New York City.....1886
WEBB, WALTER F., Geneva, N. Y.....1891
WEST, LEWIS H., Roslyn, Queens Co., N. Y.....1887
WEST, SAMUEL H., 76 Devoe St., Brooklyn, N. Y.....1889
WHEELER, DAVID E., cor. Park Ave. and 71st St., New York City...1888
WHITE, FRANCIS BEACH, Cambridge, Mass.....1891
WHITE, HARRY GORDON, 39 Union St., Taunton, Mass.....1889
WHITE, STEWART E., Grand Rapids, Mich.....1890
WHITNEY, Prof. E. R., Binghamton, N. Y.....1891
WHOLEY, W. N., Johns Hopkins Univ., Baltimore, Md.....1891
WICKHAM, H. H., Beaver, Pa.....1890
WICKS, M. L., JR., Los Angeles, Cala.....1890
WILLIAMS, J. B., 171 Johns St., Toronto, Ontario.....1889
WILLIAMS, ROBERT S., Columbia Falls, Montana.....1888
WINTLE, ERNEST D., 11 Hospital St., Montreal.....1887
WOOD, A. H., Painted Post, N. Y.....1887
WOODCOCK, Rev. C. E., Ansonia, Conn.....1891
WOODMAN, EDMUND J., Denver, Colo.....1890
WOODRUFF, LEWIS B., 14 East 68th St., New York City.....1886
WORTHEN, CHARLES K., Warsaw, Ill.....1891
WORTHINGTON, WILLIS W., Shelter Island, Suffolk Co., N. Y.....1889
WYE, SAMUEL A., Ocosta, Washington.....1891
YORKE, Dr. F. HENRY, Hallock, Minn.....1891
YOUNG, CURTIS CLAY, 63 Greene Ave., Brooklyn, N. Y.....1891
ZEREGA, Dr. LOUIS A., Barrett House, New York City.....1883

DECEASED MEMBERS.

ACTIVE MEMBERS.

Date of Death

BAIRD, SPENCER FULLERTON.....Aug. 19, 1887
GOSS, N. S.....March 10, 1891
HOLDER, JOSEPH B.....Feb. 28, 1888
JEFFRIES, JOHN AMORY.....March 26, 1892
WHEATON, JOHN M.....Jan. 28, 1887

HONORARY MEMBERS.

BURMEISTER, HERMANN.....May 1, 1892
GURNEY, JOHN HENRY.....April 20, 1890
KRAUS, FERDINAND.....Sept. 15, 1890
PARKER, WILLIAM KITCHEN.....July 3, 1890
PELZELN, AUGUST VON.....Sept. 2, 1891
SCHLEGEL, HERMANN.....Jan. 17, 1884
TACZANOWSKI, LADISLAS.....Jan. 17, 1890

Corresponding Members.

Blakiston, Thomas W.....Oct. 15, 1891
Bogdanow, Modest N.....March 4, 1888
Haast, Julius von.....Aug. 15, 1887
Homeyer, E. F. von.....May 31, 1889
Marschall, A. F.....Oct. 11, 1887
Prejevalski, N. M.....Oct. 20, 1887
Pryer, Harry James Stovin.....Feb. 17, 1888
Sevèrtzow, N.....Feb. 8, 1885
Stevenson, Henry.....Aug. 18, 1888

Associate Members.

Atkins, H. A.....May 19, 1885
Beckham, Charles Wickliffe.....June 8, 1888
Breese, William L.....Dec. 7, 1889
Coe, W. W.....April 26, 1885
Elliott, S. Lowell.....Feb. 11, 1889
Howland, John Snowdon.....Sept. 19. 1885
Kumlien, Thure.....Aug. 5, 1888
Linden, Charles.....Feb. 3, 1888
Mabbett, Gideon.....Aug. 15, 1890
Minot, Henry Davis.....Nov. 13, 1890
Northrop, John I.....June 26, 1891
Small, Edgar A.....April 24, 1884
Vennor, H. G.....June 8, 1884
Willard, Samuel Wells.....May 24, 1887
Wood, William.....Aug. 9, 1885

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BLACK DUCK'S NEST, PLUM ISLAND, N. Y.

BLACK DUCK GROUP.

IN AMERICAN MUSEUM OF NATURAL HISTORY.

THE AUK:

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SUMMER BIRDS OF PRINCE EDWARD ISLAND.

BY JONATHAN DWIGHT, JR.

LYING in the southern part of the Gulf of St. Lawrence, its low outlines just visible from the mainland, is Prince Edward Island, called by some one the 'Garden of the Gulf.' Compared with the rugged Labrador or Cape Breton coasts of the Gulf, this patch of green on the surrounding blue waters might to a fervid imagination suggest the appellation of garden, but when the climate, with its long winters and brief summers, and the limited productions of the island are taken into account, not to mention the semi-civilized aspect of much of the country, the name of garden does not strike the beholder as particularly descriptive. However, it is not my present purpose to do more than indicate the salient features of the island's topography and flora, that my fellow ornithologists may follow me the more understandingly in my endeavor to introduce to them the avifauna of a considerable area hitherto neglected by our fraternity. Anticosti, Newfoundland, Cape Breton, and particularly the Magdalen Islands have all been visited, but Prince Edward Island has been passed by, probably because it seemed to offer fewer attractions than these wilder, rougher islands.

Notwithstanding the probability that I should only meet with

birds whose acquaintance I had already made in other parts of Canada, I nevertheless devoted a couple of weeks last summer to exploring the island, and am now able to say what species are characteristic summer residents; and a few words about them may not come amiss to those of us who may be familiar with them only during the migration seasons.

The length of my stay was from June 23 to July 9, and by means of the narrow-gauge railroad, supplemented by horse power, I visited both extremities of the island, making Tignish and Souris my headquarters. The remarkable feat of connecting these places by 167 miles of railroad has been accomplished (the air line distance is less than 100 miles), the promoters of the road being desirous no doubt that each feature of the landscape should be viewed by the travelling public from at least three different points of the compass. I also stopped at intermediate points. The weather was favorable, mostly bright, the raw winds from the northeast and the brief rainstorms peculiar to the Gulf being the only disagreeable features, and these were less pronounced as July advanced and the sun gained power. What the climate must be in the winter time, when a belt of ice extending as far as the eye can reach surrounds the island, and binds it to the mainland by ever shifting floes, can only be inferred from the chilling breath of the northerly breezes that in summer sweep over the frigid water of the Gulf. The ice is said to disappear in April and spring opens, but the summer is brief and chiefly confined to the months of July and August. Brant regularly remain till the 8th of June. With such a backward spring and such a cool and brief summer it is not surprising that agriculture, beyond the production of hay, potatoes and oats, does not flourish. Corn is rarely attempted, and usually suffers by early frost.

Prince Edward Island has the form of an irregular crescent, the concavity to the northward. It embraces an area of 2133 square miles. Its extreme length from East Point to West Point is about one hundred and twenty miles, and its width would probably average about twenty miles, for the coast line is very much indented by bays. By means of them it is, roughly speaking, cut into three sections. The westernmost is the narrowest, the width increasing eastward to nearly forty miles, the island tapering off again to a point at its eastern extremity.

The geological formation of the island is a red, crumbling sandstone that gives rise to low bluffs ten to twenty feet high along the coast, these reaching a height of sixty or seventy feet at some points, notably near North Cape, at East Point, and on the north shore near New London. The bluffs (or 'clifts' as they are called by the natives) are practically perpendicular, the waves eating them away below, and usually there is a gravelly beach of detritus at their base. They are often guttered by streams, and sloping down, parallel to the water's edge, may be replaced by reaches of gravel or sand, or perhaps low islands, behind which are found lagoons and salt marshes, but in a few miles, perhaps in a few hundred yards, they may again unexpectedly rise to considerable height. The wind-swept sand beaches are chiefly along the north shore, interrupted at times by the red bluffs; and although there is always a perceptible reddish tinge to the sand, it is surprising how white it may become in some localities. The drifted sand-hills, fringed with more or less scanty grass, suggested the possibility of finding the Ipswich Sparrow, and yet my efforts were unrewarded, the Savanna Sparrows met with in such places being in no wise lighter-colored than those of adjacent fields.

A green belt of farming country encircles the island, the pastures in many places extending to the very edge of the bluffs, and back of them the land is slightly rolling, nowhere reaching any considerable altitude. The only marked inequalities are due to the erosion of small brooks, and the general effect is that of a flat country. In the central section, the best settled, the farms extend from shore to shore and have succeeded the forest that once clothed the whole island. The timber has been nearly all cut, and no large bodies remain except in the western and eastern sections, where bears, still surviving in limited numbers, indicate the nature of the unsettled tracts. A few 'blueberry barrens' were noticed. Most of the island appears to be well drained and comparatively dry. I met with no extensive swamps, nor are the shores of the fresh water lagoons and lakes (particularly abundant near East Point) especially swampy. The lagoons have been made by the damming back of small streams behind the sandbars formed by the wearing away of the bluffs. At Tignish the woods were in patches interrupted by fields, this style of country being characteristic of a large part of the island. It rep-

resents here as elsewhere the spreading of civilization that destroys utterly the forest of its own generation and takes no thought for the possible necessities of the future. Before the woodman's axe, the evergreen forest has melted away in many parts of our continent never to return, its place being taken, as is well known, by deciduous trees, they suffering in their turn, and this process is now well advanced even on Prince Edward Island.

The native trees are chiefly coniferæ and more than nine tenths of them spruce (*Picea nigra* and *P. alba*) and fir (*Abies balsamea*). Among the more abundant deciduous trees are maples (chiefly *Acer saccharinum*), birches (*Betula lenta*, *B. lutea*, and *B. papyrifera*, all in considerable numbers), beeches (*Fagus ferruginea*), and some of the willows and poplars. Of the shrubs the heath family is well represented, especially by the genera *Vaccinium* (blueberries), *Ledum* (Labrador tea), and *Kalmia* (*K. angustifolia*, sheep laurel). Alders are generally distributed. As to the herbaceous plants, they are those of the northern woods and fields. It is said that some plants of the adjacent mainland are not found on the island. In other words, the twenty miles or so of the Straits of Northumberland act as a barrier to the possible tinge of more southern forms, and the same may influence the northward range of certain species of birds more or less common on the mainland. One may find fragrant banks of the tiny, nodding *Linnæa*, pastures red with sorrel (*Rumex acetosella*), swamps blue with iris (*Iris versicolor*), clearings green with coarse ferns, beneath which gray mosses and clumps of the scarlet bunchberry (*Cornus canadensis*) may be found, and the dark evergreen woods are carpeted with the greenest of mosses. There are many other trees and bushes, notably larch (*Larix americana*) and arbor vitæ (*Thuya occidentalis*) which are rather common locally, but they are not especially conspicuous features, and I merely wish to call attention to certain parts of the flora to indicate in a very general way its character. There are many tracts of second-growth, usually almost wholly beech or maple which, if small, are shunned by birds, and nowhere can one wander far without entering tracts of timber, from which perhaps only the larger trees have been culled. When fire runs through timber, dead and blackened trunks are left that in a few years become, by the rotting away of their branches, the monoto-

nous dead stubs of the northern landscape. Prince Edward Island is, however, remarkably free from such tracts, having passed this period of primitive civilization. One way of clearing land, especially if it is covered with second-growth spruce, is to cut down everything and then let fire do its work when the brush is a little dry, so it is no wonder forest fires are easily started. After fire has swept through a clearing, raspberry bushes (*R. strigosus*) and the willow-herb or 'fire weed' (*Epilobium angustifolium*) are certain to spring up, although apparently there may have been none for miles, coarse ferns soon multiply, and in time the old stumps and fallen, half-charred logs are covered with mosses and lichens, while the ground, if not cultivated, is soon hidden by many sorts of plants and grasses. In such spots the White-throated Sparrow and the Slate-colored Junco find their favorite haunts, and here the Hermit Thrush makes its nest near the edge of the woods, and sings from some favorite tree. Perhaps an Olive-sided Flycatcher may be heard whistling from the top of the tallest dead tree to be found in or near the clearing, or a Wood Pewee may wander out from a bit of open woods of mixed growth near by, where also may be heard a Parula Warbler or a Red-eyed Vireo. If maples, birches, and beeches predominate, Ovenbirds will be found, and the larger the growth the more probability there is of finding the Black-throated Blue Warbler. The Winter Wren and the Yellow-bellied Flycatcher abide in the dense evergreen woods along mossy brooks where few other birds disturb the quiet, save perhaps wandering Warblers or Thrushes. In clearings grown up with small spruces Magnolia Warblers always abound, and if these trees are of considerable size there are sure to be Olive-backed Thrushes, Black-throated Green and Myrtle Warblers. The Nashville Warbler is usually found in the detached, ragged bits of mixed woods, which the Magnolia and Myrtle Warblers also frequent, together with Redstarts and Thrushes. Such in brief are some of the characteristic birds of the woods, and such their favorite haunts, though their tastes of course may vary and some, such as the Hudsonian and Black-capped Chickadees, the Woodpeckers, and the Golden-crowned Kinglets, are almost sure to be found in unexpected places.

Then there are damp bushy tracts where the bushes may be waist high and an occasional arbor vitæ or larch rises above the smaller growth. Here one may seek Canadian and Wilson's

Warblers and Maryland Yellowthroats, while swampy alders suggest the probability of finding Traill's Flycatchers and Swamp Sparrows. If a brook passes through the alders, Water-thrushes may be heard, but it is no easy matter to get even a glimpse of them.

The birds of the fields are numerous, the Savanna Sparrow probably outnumbering all the others put together. Vesper Sparrows and Song Sparrows abound, while the Robin and Flicker are more frequently seen in the open than elsewhere. Crows stalk about in every field, though their nests are in the woods. Goldfinches, Purple Finches, Crossbills and Cedarbirds are generally seen on the wing in the open country, and flying higher than the Swallows (Barn, Bank, and White-bellied) which most frequently are noticed skimming along near the ground or over the surface of a sheet of water.

Long familiarity with the notes and habits of the birds of the Maritime Provinces enabled me to accomplish much more than if I had been a stranger to them, and even though my stay was brief, I feel confident that those species that escaped my attention were either exceedingly rare or did not occur in the localities I visited. All males were in full song, and females startled from their nests lost no time in beginning to scold. I was in the field from morning till night, and my gun with its auxilliary was a trusty friend. Of a previous visit to the island in 1876 little need be said, for the egg fever was on me at that time and the finding of a Junco's nest was sufficient to satisfy my ambition for several days.

While in Charlottetown I examined a hundred or more birds stuffed by Prof. S. N. Earle, but unfortunately they lacked data and are therefore of little use in the present connection. From him, however, I obtained much interesting information. Some notes upon the winter birds of the island have been published by Mr. Bain (Auk, II, 1885, pp. 262–267).

I present here a list that embraces only the species that have come under my own observation, but it includes most of the birds that make their summer home on Prince Edward Island, the fauna of which is thoroughly Canadian.

Cepphus grylle. BLACK GUILLEMOT. — The 'Sea Pigeons' used to breed in great numbers in the cliffs at various points along the coast. I have no doubt that they still do so in smaller numbers, although the only positive

evidence I have is the fact that I saw a dozen or more of the birds about a cliff near New London on the north shore of the island, and heard the young 'squealing' in inaccessible crevices. This cliff, extending for perhaps half a mile, is probably the highest on the island, and is almost sheer to the water seventy or eighty feet below. No beach here intervenes between its base and the waves which in times of storm beat so fiercely against it that it is justly dreaded by mariners as one of the most dangerous spots on the north shore of the island. Its crumbling face, to the very brink of which the green fields above extend, affords ledges and seams where the 'Sea Pigeons' find secure nesting places, and are said to be "plenty." I devoted only one day to exploring this locality and did not see many birds. They were in small parties or pairs, floating upon or skimming over the water, or quietly sitting upon some ledge, the white wing-patch conspicuous against the red background of rock as viewed from a boat. Their black bodies were comparatively inconspicuous owing to shadows. At Tignish a boy told me he had found a nest the previous year in the low bluffs of the north shore, and I think they may breed in the high cliffs southwest of North Cape, although I could not make thorough search. I also saw a pair at East Point where again are high cliffs, sixty feet or more in height.

Larus argentatus smithsonianus. AMERICAN HERRING GULL. — A few were seen from time to time, but I could find no evidence that they bred on the island. Birds of such powerful flight might well wander in the course of a day many miles from their breeding grounds.

Sterna hirundo. COMMON TERN. — It is probable that this species, known as the 'Mackerel Gull,' is the only Tern resident during the summer months, and it is abundant at many points, particularly the sandy reaches of the north shore. I visited a colony near Souris July 7, consisting of perhaps seventy-five pairs. Several nests found contained three eggs each, and were the usual depressions in the plains of drifted sand, protected possibly by a few blades of coarse beach-grass and in one case by a few wisps of grass wound round the edge of the hollow. The birds were reserved in their demeanor, but did not hesitate to expose themselves to the danger of firearms when their nests were examined. Their dainty plumage and easy flight always seem out of keeping with their harsh voices. It is pleasant to visit a colony of Terns and realize it has escaped the persecutions of the milliners, for perhaps no one genus of birds has been more thoroughly exterminated in certain sections of our country than has *Sterna*, thanks to Dame Fashion's inexorable decrees. I was told that this species made its appearance each spring with wonderful regularity on the north shore — usually May 22 — and always between May 21 and 24.

Phalacrocorax ———? Two birds were seen at New London, July 2, perched on a cliff white with their chalkings, but they could not be approached. I was told that 'Shags' were often seen on this rock, but were not thought to breed there. Whether *carbo* or *dilophus* it is impossible for me to say.

Anas obscura. BLACK DUCK. — This is the only Duck of whose presence I have conclusive evidence. I saw a brood on a fresh water lake near Souris, and I found dried up on the sand one day the carcass of an adult. In several other localities I heard of nests having been found.

Botaurus lentiginosus. AMERICAN BITTERN. — A tolerably common bird in suitable localities, and known by the name of 'Mud-hen.'

Ardea herodias. GREAT BLUE HERON. — I learned of at least two heronries of this bird, but did not visit them. One near Charlottetown was described to me as containing several hundred birds. The nests were in hard-wood growth, and were warranted to contain young each year by July 4. The Herons were seen at many points on the island, notably along St. Peter's Bay, where I saw upwards of twenty as the train skirted the shore. They paid little or no attention to it, although often less than a gun-shot distant.

Philohela minor. AMERICAN WOODCOCK. — The sportsmen are acquainted with this bird but it is considered rare. I saw a stuffed specimen, and well recollect the one I shot at I don't know how many times when I visited Hunter River in 1876. The country about there is better suited to it than much of the ground visited this time. The partiality of the Woodcock for clean alder swamps still obtains on Prince Edward Island.

Gallinago delicata. WILSON'S SNIPE. — This species breeds, sparingly I fancy, at suitable places on the island. I saw a young bird in first plumage among Prof. Earle's birds and talked with several men who had found nests. The tussocks in boggy places along brooks seem to be the usual site — in one case a nest was found in a bunch of iris.

Actitis macularia. SPOTTED SANDPIPER. — Generally distributed along brooks in the open country and fairly common. A nest was found in an odd situation at Tignish. It was under a decayed log on a boggy slope, and was carefully lined with bits of rotten wood.

Ægialitis meloda. PIPING PLOVER. — Frequented the sandy or gravelly beaches in considerable numbers.

Bonasa umbellus togata. CANADIAN RUFFED GROUSE. — A few only were met with, although said to be abundant. A novel method of hunting them reached my ears. They come out upon the railroad in a certain section to sun themselves, and it is said the sportsman riding to and fro on a track-velocipede shoots them so that sometimes he can pick them up without stopping. I was informed by gunners that *Dendragapus canadensis* does not inhabit the island.

Circus hudsonius. MARSH HAWK. — Birds of this species were occasionally seen, recognizable at long distances by the white bar on the tail. It was almost the only Bird of Prey met with.

Aquila chrysaëtos. GOLDEN EAGLE. — I examined a live specimen in young plumage, captured June 23, in a fox trap set for it, near New London. The man who caught it thought there was a nest near by in a piece of woods, and expected to trap the old birds as well, one of which he had seen. After visiting the locality I am inclined to doubt whether the bird was bred on the island. Eagles are considered rare birds there by all the

people with whom I talked, and probably stray from wilder regions, such, for instance, as Cape Breton.

Falco columbarius. PIGEON HAWK. — A bird that I took to be this species was seen one day. Prof. Earle showed me a stuffed specimen.

Pandion haliaëtos carolinensis. AMERICAN OSPREY. — Seen both at Tignish and Souris in limited numbers.

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO.— One specimen obtained at Tignish is the only evidence I have of its occurrence on the island.

Ceryle alcyon. BELTED KINGFISHER. — Tolerably common, making its home in holes dug into the sand stratum that overlies the rock of the bluffs along the shores.

Dryobates villosus. HAIRY WOODPECKER. — Occasionally observed. There seemed to be a great dearth of Woodpeckers, the Flicker alone excepted. Dead trees did not abound, still there were a great many of them scattered here and there.

Dryobates pubescens. DOWNY WOODPECKER. — The only birds I chanced to meet were a family at Souris occupying a hole thirty feet from the ground in a dead maple of large dimensions. The locality was a grove of old maples.

Sphyrapicus varius. YELLOW-BELLIED SAPSUCKER. — This species was also unexpectedly rare and seldom met with.

Ceophlœus pileatus. PILEATED WOODPECKER. — Said to have been formerly common. Prof. Earle showed me a stuffed specimen, but I found no other evidence, save hearsay, of its occurrence. No 'mortise holes' were discovered.

Colaptes auratus. FLICKER. — The only abundant Woodpecker, and found everywhere in moderate numbers. June 25, a nest with fully fledged young was examined in the top of a hollow fence post. No excavation had been made by the bird, and the young were entirely exposed to the weather.

Chordeiles virginianus. NIGHTHAWK. — A few were seen almost every day, frequenting the open clearings or sailing high in the air at sunset.

Chætura pelagica. CHIMNEY SWIFT. — Rather rare, and not often seen. In a country where a majority of the houses have but one chimney, and that chimney in use from one year's end to another's, it is not remarkable that the Chimney Swift still nests in its primitive manner in hollow trees, but it is remarkable how soon it takes kindly to civilization when this has advanced to the point of building houses with a spare-room chimney.

Trochilus colubris. RUBY-THROATED HUMMINGBIRD —Not observed, but undoubtedly occurs. Prof. Earle showed me stuffed specimens.

Tyrannus tyrannus. KINGBIRD. — Rather common, and no doubt greatly enjoys life where there are so many Crows to be harrassed.

Contopus borealis. OLIVE-SIDED FLYCATCHER. — One specimen was observed at Souris. Prof. Earle was familiar with it.

Contopus virens. WOOD PEWEE. — Not common, though now and then met with in certain localities.

Empidonax flaviventris. YELLOW-BELLIED FLYCATCHER. — Found only at Tignish and in small numbers. The dryness of the other localities visited would partly account for its absence. The scarcity of this and the following species rather surprised me.

Empidonax pusillus traillii. TRAILL'S FLYCATCHER. — A few at Tignish in their favorite haunts, the alders, were the only ones met with. It is likely that both this species and the preceding are in some other localities more abundant than my observations would indicate.

Empidonax minimus. LEAST FLYCATCHER. — A cheerful series of 'che-bécs' greeted me one morning at Souris. It is really easier to distinguish this bird from *traillii* by its notes than by the bird in hand, but the bird in hand is, unfortunately perhaps, a scientific necessity. No others were seen.

Cyanocitta cristata. BLUE JAY. — Not abundant, and only occasionally met with. No *Perisoreus canadensis* were even heard of.

[**Corvus corax principalis** RAVEN. — I was told that a pair of Ravens had formerly nested for several years on the face of the cliff at East Point, and while I think my informant could have made no mistake as to the species, I hesitate about admitting a bird to the list on hearsay only.]

Corvus americanus. AMERICAN CROW. — Nowhere, in the breeding season, have I ever seen Crows so abundant and so tame. They were never out of sight or hearing, and they sit on the fences and 'caw' at you derisively as you ride by. Of course their numbers were augmented by young birds, and early in July they were beginning to flock, as indicated by a gathering of nearly a hundred seen July 4. At Tignish there was a roost in a large patch of woods, whither towards sundown and later Crows were seen converging from all directions. In the woods a terrible noise was kept up until it grew dark. The Crows do not molest the farmer to any great extent, as he raises no corn, but I was told they kill young chickens and pick out the eyes of new-born lambs. They daily congregate for a feast in the fields where the refuse of the many lobster-canning establishments is used as a fertilizer.

Scolecophagus carolinus. RUSTY BLACKBIRD. — A flock of twenty or more, largely young birds, near East Point July 7, were the only ones seen. I had heard of their occurence elsewhere.

Quiscalus quiscula æneus. BRONZED GRACKLE. — A pair of these birds in Prof. Earle's possession were the only ones he had ever seen, very likely stragglers from the mainland.

Carpodacus purpureus. PURPLE FINCH. — Sparingly distributed, a restless and roving species, and seen singly or in pairs.

Loxia curvirostra minor. AMERICAN CROSSBILL. — Perhaps more abundant than the following species, but the flocks are so often made up of birds of both species, and so much more frequently seen or heard flying overhead rather than allowing a closer examination, that it is difficult to estimate their numbers. At any rate both were occasionally seen in flocks of old and young, sometimes one species predominating (usually the flock was almost entirely made up of one species), sometimes the

other. Although the call notes are quite distinguishable, those of *leucoptera* being harsher, it is no easy matter to determine percentages in chattering flocks of a dozen or more birds. Their favorite feeding haunts were larch trees, and, unless disturbed, they were silent as they hung about the branches in all conceivable attitudes, usually upside down. They also feed on the seeds from the green cones of the fir which are tipped with freshly exuded pitch at this season, if it be a cone year. The pitch often mats on the bills and feathers of the birds. Dissection showed the breeding season to be long past.

Loxia leucoptera. WHITE-WINGED CROSSBILL. — Rather numerous. The remarks made under the preceding species apply also to this. Neither can be seen every day, for both are great wanderers.

Spinus tristis. AMERICAN GOLDFINCH.—A few seen almost daily.

Spinus pinus. PINE SISKIN.—It surprised me to meet with this species but once—a male at Souris. Dissection showed the bird to be breeding.

Poocætes gramineus. VESPER SPARROW.—An abundant bird, frequenting the open fields in the more settled districts.

Ammodramus sandwichensis savanna. SAVANNA SPARROW. — It is probably the most abundant bird on the island, and is found everywhere except in woods. On sand beaches, marshes, or dry fields its weak song was constantly to be heard, and in certain pastures it seemed as if every third fence post were occupied by a singer. As an illustration that flying is a matter of practice on the part of young birds, I instance a young Savanna Sparrow that I flushed one windy day in a pasture where the grass was very short. The wind upset all his calculations and himself as well, apparently getting under his wings and turning him upside down every time he started on a fresh flight. He would get along pretty well for a rod or so and then a puff would send him bowling over the sod till he reached a point of fright and exhaustion that left him panting just where he happened to roll.

Ammodramus caudacutus subvirgatus. ACADIAN SHARP-TAILED FINCH.—A few birds in a salt marsh at Tignish were the only ones I could discover, although I searched in many other localities. As Mr. Wm. Stone found this form abundant at Tignish in 1876 (recorded as *A. caudacutus*, for *subvirgatus* was not then separated, Brewster, Bull. N. O. C., Vol. II, Jan. 1877, p. 28), I was surprised not to find it more abundant. I saw likely ground along East River, but did not have time to explore it, and the birds very possibly may be locally distributed here and at other points also.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—This bird so characteristic of the Canadian Fauna is less abundant than the ubiquitous Junco, but on account of its loud and striking song is far better known to the average inhabitant. It is a bird of the clearings, building its nest upon the ground in a bunch of weeds, and singing nearly all of the time it is not occupied scolding intruders. Its well-known song is easily imitated, and it is amusing to see how angry and excited a male will become if he thinks another has strayed into his own domain. The song

is sometimes heard breaking the stillness of the night, and only those who have passed a night in the northern woods can know how profound this stillness may be. The song has given to the bird many local names wherever it occurs, one of the best known being 'Kennedy Bird.' I heard a new version which credits him with saying 'Good Lord, pity me, pity me, pity me.' When the young get on the wing, the song is less frequently heard. The bird is known to the few French settlers of the island as *rossignol* (nightingale).

Spizella socialis. CHIPPING SPARROW.—Not a common species, and only occasionally observed.

Junco hyemalis. SLATE-COLORED JUNCO.—Next to the Savanna Sparrow this is probably the most abundant bird on the island. It is found everywhere,—in dooryards, open fields, fern-clothed clearings, even deep woods. Its nest is on the ground, preferably under something—the bottom rail of a fence or a hole in some grassy bank. Young were just beginning to fly June 23, and a week later nests with fresh eggs indicated a second laying. Its local name is 'Bluebird,' a strange misnomer, even though *Sialia sialis* does not occur.

Melospiza fasciata. SONG SPARROW.— Very abundant and generally distributed. Mr. Bain states that some winter on the island.

Melospiza georgiana. SWAMP SPARROW.— Rather common in very wet, bushy meadows, with alders here and there, or in open swamps of limited area, such as occur along brooks in cleared country.

Petrochelidon lunifrons. CLIFF SWALLOW.—A common bird, locally distributed, and nesting in colonies under the eaves of barns and houses.

Chelidon erythrogaster. BARN SWALLOW.— Abundant and generally distributed.

Tachycineta bicolor. WHITE-BELLIED SWALLOW.— Fairly abundant, nesting in old Woodpecker holes in clearings, crevices about barns, and the hollow ends of the rails composing the zigzag fences so common on the island. The sudden disappearance of a Swallow as it alighted on a fence was almost startling until I learned that in some deep hollow, decayed out of the heart of an unsplit rail, was a cosy nest of grass and feathers. It was impossible to dislodge the birds that were sometimes out of arm's reach, but several nests examined the last week in June contained young. I have never found this species nesting in such a location before.

Clivicola riparia. BANK SWALLOW.— I perhaps do this species an injustice when I say that it is outnumbered by the Savanna Sparrow and the Junco. I saw colonies of hundreds at several points along the coast, and as every bluff is crowned by a layer of sand, and much of the coast line is a continuous bluff, the Swallows have unrivalled opportunities for nesting places.

Ampelis cedrorum. CEDARBIRD.— Seen now and again, but not common. There is a remarkable similarity between a lisp of this species, a certain note of the Robin, and one of the Hermit Thrush.

Vireo olivaceus. RED-EYED VIREO.—A common and in a few localities an abundant bird, here as elsewhere a tireless songster. It prefers deciduous trees, particularly large maples.

Vireo solitarius. SOLITARY VIREO.—At Souris one day I was attracted by the song of this bird, and soon saw the performer. This was the only specimen observed on the island. I have often met with it on the mainland, and fully expected to find others, as its rich, clear song, disconnected withal in delivery, cannot fail to attract attention.

Mniotilta varia. BLACK-AND-WHITE WARBLER.— Occasionally seen or its 'wiry' song heard, though not very common.

Helminthophila ruficapilla. NASHVILLE WARBLER.— Rather abundant at Tignish and not met with elsewhere. The activity of this bird is highly commendable, unless you are in pursuit of one, when you are not so favorably impressed. Hardly pausing to dash off its lively song, it is one moment at the very top of some tall tree and the next on the ground a hundred yards away where its song breaks forth quite as vigorously. The bird is the embodiment of restlessness.

Compsothlypis americana. PARULA WARBLER.— Infrequently observed and generally in the upper branches of hard-wood forest.

Dendroica æstiva. YELLOW WARBLER.— Rather common and quite as likely to be found among lonely alder thickets as in the trees around houses.

Dendroica cærulescens. BLACK-THROATED BLUE WARBLER.— A few were detected at Souris. I did not see such extensive hard-wood timber anywhere else on the island, and as the species has a decided preference for such localities, its absence elsewhere is perhaps not to be wondered at.

Dendroica coronata. MYRTLE WARBLER.— Common. Their song reminded me of early spring days in lower latitudes. Their favorite haunts were clumps of spruces and firs in partly cleared land.

Dendroica maculosa. MAGNOLIA WARBLER.— This is the characteristic Warbler of the region and is abundantly represented. It is most abundant in low growths of spruces, where the variety of its song is often confusing.

Dendroica virens. BLACK-THROATED GREEN WARBLER.— Abundant at every place visited where the forest was composed of trees of considerable size.

Dendroica palmarum hypochrysea. YELLOW PALM WARBLER.—An incubating female taken at Tignish is the only evidence I have of this bird's occurrence. The locality was damp, cleared ground, growing up with bushes and small larches.

Seiurus aurocapillus. OVENBIRD.— One was noted at Tignish, and a number at Souris in the hard-wood timber. It is doubtless fairly common in suitable localities.

Seiurus noveboracensis. WATER-THRUSH.— A few were met with at Tignish only. It is a species that but for its loud song would easily escape notice. Invariably found along brooks or in their near vicinity.

Geothlypis philadelphia. MOURNING WARBLER.— Apparently rare, though a few were found at Souris in the bushy edges of dry fields adjoining the woods.

Geothlypis trichas. MARYLAND YELLOWTHROAT.— Found sparingly

in the western portion of the island. None were noted at Souris, although I have no doubt they occur there.

Sylvania pusilla. WILSON'S WARBLER.— One specimen was secured at Tignish in an extensive arbor-vitæ and alder swamp. This is a retiring species and is probably not uncommon if particular search be made for it.

Sylvania canadensis. CANADIAN WARBLER. — Rather common about Tignish, but not met with elsewhere, although I have no doubt it occurs in suitable localities.

Setophaga ruticilla. AMERICAN REDSTART. — Abundant. One of its songs might be easily confused with one of *D. maculosa*. The importance of recognizing songs in a region where the denseness of the woods and underbrush renders the sight or capture of the vocalist often well-nigh impossible, is very great, but to depend entirely upon one's ear in identifying birds is a procedure greatly to be deprecated.

Troglodytes hiemalis. WINTER WREN. — Tolerably common in damp woods along brooks, or sometimes in more open localities. On July 6 I met with a family of young birds able to fly. That so minute a bird should produce such a volume of liquid sound is ever to me a source of wonderment. It is often impossible to see the little fellow when he is pouring forth his song right over your head, but those who have ever entered a dense second-growth of spruces, with a wilderness of dead twigs interlacing below, know one of the difficulties that beset the path of the collector in the northern woods.

Sitta canadensis. RED-BELLIED NUTHATCH. — I had about given up seeing this species at all when I came upon several at Souris, probably a family. They feed usually in the upper boughs of spruces, and seldom run up and down the trunks of trees like their white-breasted brethren. They have a nasal cry of one note, uttered with varying intensity, and never rapidly repeated like the other species. Of course I should not venture such general conclusions as these with regard to this species, nor to others, if they were not based upon further observations made elsewhere.

Parus atricapillus. BLACK-CAPPED CHICKADEE. — Occasionally small roving families were encountered, so that it is probably a fairly common species.

Parus hudsonicus. HUDSONIAN CHICKADEE.—Tolerably common, but not attracting attention to itself so aggressively as does *atricapillus*. However, when it does speak out, it always seems to me to make use of the ungrammatical expression 'It's mé-e,' with a good deal of emphasis on the 'me-e.'

Regulus satrapa. GOLDEN-CROWNED KINGLET. — Infrequently observed. Young were on the wing the last of June. It should have proved much more abundant than I found it to be.

Turdus ustulatus swainsonii. OLIVE-BACKED THRUSH. — Very abundant, almost equalling in numbers the Hermit Thrush. They are usually excessively shy and difficult to obtain, although several may be singing

within hearing at the same time. They frequent thick growths of spruces, and from some commanding perch pour forth their rich song. If they become aware of your approach even a gunshot or more away, they dive down into the dense undergrowth, and a few soft alarm notes are the last you hear of them. Squeaking to them will bring them to you for one brief look, which satisfies them, but not you, for they generally see you first and at close range. Sometimes they sing in the thickets of spruces, but are more apt to have a particular perch, perhaps on some towering, dead tree. I heard no songs that I had any reason to suppose were other than true *swainsonii*, for the possibility of finding *bicknelli* or *aliciæ* had to be kept constantly in mind. I found no young, even up to the last day of my stay, but that proves nothing with a bird so retiring. They sang more persistently and in greater numbers in the early morning and late evening hours.

Turdus aonalaschkæ pallasii. HERMIT THRUSH. — Slightly more abundant than the preceding species, and perhaps more generally distributed. The songs and notes of this species have been so frequently confused with those of other Thrushes, particularly with those of the Olive-backed Thrush, that an effort on my part to call attention to the differences that exist between them may not be without interest. The deliberate character of its song is in marked contrast to that of *swainsonii* and its musical ability is more varied. The usual song dies out without the rising inflection of *swainsonii*, and there is a pause after the first syllable, while in *swainsonii* there is no pause and the second syllable is strongly accented, the whole song being quickly delivered. The Hermit Thrush has also a nasal note of complaint in two ellided syllables, a cluck like a Blackbird, and a lisp not unlike a Cedarbird. The nasal note has its counterpart in *swainsonii* which utters a similar, but more liquid note, and the cluck of *pallasii* may be compared with a 'puk' or 'pink' (as near as it can be represented) of *swainsonii*. The lisp is peculiar to *pallasii*, while there is a queer multiple note of soliloquy peculiar to *swainsonii*.

Merula migratoria. AMERICAN ROBIN. — Very abundant in the more open country. An occasional one is said by Mr. Bain to remain through the winter, subsisting on the berries of the mountain ash.

NOTES ON CERTAIN WASHINGTON AND BRITISH COLUMBIA BIRDS.

BY SAMUEL N. RHOADS.

OWING to unavoidable delay in the publication of a complete paper on the birds I observed in Washington and British Columbia in 1892 I am induced to present the following remarks on some of the more noteworthy species. These notes are based for the most part on a collection of birds made during the past spring and summer on Puget Sound, Vancouver Island, and in parts of British Columbia south of the fifty-third parallel between the Rocky Mountains and the Pacific coast. Of the twenty species recorded as new to the fauna of British Columbia a few may be found in Lord's list,[1] but owing to the debatable nature of the territory surveyed by that naturalist and the inaccuracy of many of his statements, we are forced to ignore it in this connexion. Additions to the lists of Messrs. Chapman and Fannin are: —

Simorhynchus pusillus.
Charadrius dominicus fulvus.
Callipepla californica vallicola.
Bubo virginianus.
Bubo virginianus arcticus.
Glaucidium gnoma.
Perisoreus canadensis capitalis.
Chondestes grammacus strigatus.
Zonotrichia querula.
Spizella socialis.
Passerella iliaca schistacea.
Clivicola riparia.
Vireo huttoni obscurus.
Helminthophila ruficapilla gutturalis.
Dendroica maculosa.
Icteria virens longicauda.
Certhia familiaris montana.
Parus hudsonicus columbianus (subsp. nov.).
Turdus ustulatus swainsonii.
Turdus aonalaschkæ pallasii.

Additions to previous avifaunal lists of Washington are: —

Colymbus holbœllii.
Urinator arcticus.
Simorhynchus pusillus.
Synthliboramphus antiquus.

[1] 'Naturalist in British Columbia,' J. K. Lord, Vol. II, Appendix.

Brachyramphus marmoratus.[1]
Cepphus columba.[1]
Uria troile californica.
Larus argentatus smithsonianus?
Larus californicus.[1]
Larus delawarensis.[1]
Larus brachyrhynchus.
Phalacrocorax dilophus cincinatus.
Merganser serrator.[1]
Lophodytes cucullatus.[1]
Anas discors.
Spatula clypeata.[1]
Aix sponsa.[1]
Aythya americana.
Histrionicus histrionicus.[1]
Anser albifrons gambeli.[1]
Branta canadensis hutchinsii.[1]
Branta canadensis occidentalis.[1]
Branta canadensis minima.
Olor buccinator.[1]
Grus mexicana?
Porzana carolina.
Fulica americana.[1]
Tringa canutus.
Totanus flavipes.
Arenaria interpres.[1]
Hæmatopus bachmani.
Oreortyx pictus.[1]
Callipepla californica vallicola.
Dendragapus franklinii.[1]
Lagopus leucurus.
Cathartes aura.[1]
Circus hudsonicus.[1]
Falco peregrinus pealei.
Falco columbarius suckleyi.
Asio wilsonianus.
Syrnium occidentale.
Megascops asio kennicottii.[1]
Dryobates pubescens gairdnerii.[1]
Sphyrapicus ruber.[1]
Cypseloides niger.
Pica pica hudsonica.[1]
Agelaius phœniceus.[1] [2]
Progne subis.[1]
Vireo solitarius cassinii.[1]
Dendroica coronata.[1]
Sitta carolinensis aculeata.
Sitta canadensis.
Parus atricapillus occidentalis.

Simorhynchus pusillus. LEAST AUKLET. — Mr. Jos. Edwards, of the well-known firm of Edwards Bros., taxidermists, of Tacoma, called my attention to the occurrence of a "very small Auklet," a pair of which were seen by his father on Puget Sound during the winter of 1888. One of these was wounded and finally escaped after a very close pursuit by the two men in a canoe.

The diminutive size of this Auklet as compared with *Ptychoramphus aleuticus*, or any other of its congeners known to inhabit those waters, and the great familiarity of Mr. Edwards with these, makes the authenticity of this record almost unquestionable, and extends its winter range several hundred miles south of previous records.

Syrnium occidentale. SPOTTED OWL. — Two Owls (one of which is in the collection), taken by Edwards Bros. twelve miles east of Tacoma, on the western foothills of the Cascades, prove to be almost identical with Xantus's type of *Syrnium occidentale* taken at Fort Tejon, California. In color the Washington specimens agree with the type in being darker

[1] Washington species included in Cooper and Suckley's Pacific R. R. Report of 1860, Vol. XII.

[2] Mistaken for *A. gubernator* by Lawrence, Auk, IX, 45.

and larger than Arizona specimens. The Spotted Owl has heretofore been considered representative of the Lower Sonoran Fauna; that it should thus suddenly appear on the Boreal horizon is somewhat startling.

Bubo virginianus. GREAT HORNED OWL.

Bubo virginianus saturatus. DUSKY HORNED OWL.

Bubo virginianus subarcticus. WESTERN HORNED OWL.

Bubo virginianus arcticus. ARCTIC HORNED OWL. — The distribution of resident and visiting forms of Horned Owls throughout British Columbia is most confusing. I have examined about thirty specimens, representing all localities visited. Of these, six from the region between the Cascade and Rocky Mountains (Ashcroft to Vernon) are almost typical *virginianus;* three from Vernon are as dark as lighter specimens of *saturatus* from the coast, and six others from the same place grade from typical *subarcticus* nearly into *arcticus.* It is probable that two winter specimens in the collection of Mr. W. C. Pound, at Vernon, are *arcticus.*

The presence of individuals so closely resembling *virginianus*, west of the Rocky Mountains, is the most striking example of the frequent reproduction of eastern forms in the northwest I have yet observed. The reappearance of the dark *saturatus* phase upon the well-watered slopes of the Selkirk Range, and their disappearance a few miles farther east on the Rockies, tallies perfectly with the local climatic conditions of those regions. If we consider the extreme susceptibility to environment displayed by certain genera of North American Owls, and their tendency to dichromatic variation, the mixed condition of the *Bubo virginianus* group becomes less puzzling. The occurrence of *saturatus* in Labrador and on the mountain peaks of Idaho and Arizona, as testified by Ridgway and Merriam, is in keeping with my own experience. From such a state of affairs to the voluntary, individual assumption of color characters according with sudden local changes of environment, is a step in development too short to be impossible.

Glaucidium gnoma. PYGMY OWL. — That the California Pygmy Owl of the Pacific slope of British Columbia is sparingly replaced by true *gnoma* in the interior, is shown by several specimens taken by Mr. Pound of Vernon, one of which is in the collection.

Colaptes cafer+auratus. 'HYBRID' FLICKER.—A paper on 'Hybridism as exemplified in the genus *Colaptes*,' in the issue of 'Science' for Dec. 9, 1892, embodies my observations on this interesting group.

Corvus americanus. AMERICAN CROW.

Corvus caurinus. NORTHWEST CROW. — Thirty specimens of Crows from British Columbia and the shores of Puget Sound, Washington, of which fifteen are in the Streator collection and fifteen in mine, give the following measurements (in inches).

	Sex	*Wing*	*Tail*	*Tarsus*	*Exposed Culmen*
East Cascade region of B. C.	♂	12.45	7.15	2.25	1.72
" " " " "	Juv.	12.30	6.90	2.15	1.60
" " " " "	♂	11.75	6.75	2.25	1.55
" " " " "		11.12	7.05	2.15	1.56
" " " " "		11.75	7.00	2.25	1.75
" " " " "	♀	11.95	6.75	2.12	1.68
West Cascade region of B. C.	♀	11.50	6.65	1.80	1.76
" " " " "	♀	11.00	6.60	1.90	1.70
" " " " "	♂	10.60	5.90	1.90	1.60
" " " " "	♂	12.00	6.80	2.00	1.62
" " " " "	♀	11.00	6.25	2.05	1.62
" " " " "	♂	10.90	6.12	1.80	1.70
" " " " "	♂	10.40	6.62	2.01	
" " " " "	♂	11.00	6.60	1.85	1.60
" " " " "	♀	11.00	6.80	2.00	1.62
" " " " "	♀	11.20	6.50	1.90	1.62
" " " " "	♂	11.15	6.60	1.94	1.70
" " " " "	♀	10.50	5.90	1.89	1.55
" " " " "	♂	11.40	6.30	2.00	1.68
" " " " "		11.40	6.50	1.96	1.68
West Cascade region of Washington		11.50	6.60	1.80	1.63
" " " " "	♂	12.05	6.75	2.16	1.80
" " " " "	♂	11.55	6.80	2.00	
" " " " "	♀	10.65	6.30	2.05	1.50
" " " " "	♂	11.65	6.80	2.12	1.65
" " " " "	♂	11.25	6.25	2.23	1.60
" " " " "	♂	11.75	6.80	2.20	1.55
" " " " "	♂	11.48	7.00	2.14	1.70
" " " " "	♀	11.15	6.50	2.00	1.45
" " " " "	♂	12.12	7.60	2.21	1.77
Average		11.40	6.90	2.00	1.65
Average of *C. americanus* (Eastern)		12.36	7.43	2.27	1.92

Examination of these figures and of the specimens from which they are taken emphasizes the conclusions of Mr. Chapman (based on the Streator series), as given in the Bulletin of the Amer. Mus. Nat. Hist., Vol. III, p. 142. "Coloration is apparently of no diagnostic value—examples which measurements proclaim *caurinus* are as glossy as any of the larger birds, while some of these [larger specimens] are as lustreless as any bird in the series." It is also remarkable that extremes of the series, referable to *caurinus* on the one hand, and to *americanus* on the other, are connected by an unbroken chain of intermediates exhibiting every possible phase of gradation, inhabiting promiscuously certain parts of the same breeding range, and that in three localities the extremes were found paired together.

Dr. Suckley, who was the first to describe the habits of *caurinus*, notices particularly the difference in the voice of the Pacific coast forms from that of the Eastern bird, and, while recognizing that there was a great difference in size among the Crows frequenting Puget Sound, naturally attributed these vocal differences solely to the smaller and more numerous individuals designated as *caurinus*. He failed to see any difference in the breeding habits of the large and small birds. It remained for the imaginative and too superficial naturalist of the International Boundary Commission, Mr. J. K. Lord, to further separate the so-called 'Barking Crow' from its larger associate, by stating that the former, after spending the winter on the coast, retired to the interior to breed, and that it there constructed a domed nest of mud and sticks, etc. On the contrary, I am free to assert that typical specimens of *caurinus* rarely cross the Cascade Range, and more rarely breed there, that they breed as abundantly and in the same manner and situations along the Pacific coast as their larger brethren; that Northwest Crows never build a domed nest, nor, to my knowledge, ever inhabit one, that custom being the peculiar monopoly of the Magpie; and, finally, that the vocal peculiarities of Northwest as distinguished from Eastern Crows are shared equally by great and small birds.

Prof. Baird, in the original description of *C. caurinus*, characterizes it as a "small Crow from the northwest coast," separable from *americanus* by its diminutive size, but differing in no other essential particular of proportions or coloration from *americanus*, and quotes Dr. Suckley regarding its habits, as already given. Baird further shows that *C. ossifragus* is easily separable from both *americanus* and *caurinus* by the relative proportions of tarsus and toes and by the color of lower parts, and raises the question whether *caurinus* is "more than a dwarfed race of the other species," *i. e.* of *americanus*.

Mr. Ridgway, in his 'Manual,' endeavored to formulate characters for *caurinus* which would set at rest any doubts as to its title to specific rank, resting his claim on certain peculiarities of coloration and measurements which the material in my possession proves to be inconstant and valueless. In answer to a letter calling attention to this, he writes: "I had entertained hopes that good characters might be found to distinguish *C. caurinus* as a species, but doubtless you are justified in your failure to find them. Is it not possible, however, that interbreeding of *caurinus* and the western form of *americanus* has caused the state of affairs which you have discovered?"

Summing up the evidence, we have left us barely two alternatives, one the possibility that "*caurinus* and the western form of *americanus*" interbreed in this region and that the intermediates are hybrids resulting from such a union, the other, the probability that *caurinus* is a dwarfed example of the smaller western race which Mr. Ridgway described in 1887 under the name of *Corvus americanus hesperis*, and which, for reasons better known to themselves than to the public, the A. O. U. Committee failed to recognize. A subspecific distinction between the smaller and larger interbreeding Crows of the Pacific coast being a violation alike of good sense

and good rules, it remains to name the British Columbia Crows either *americanus* or *caurinus* according to size, and their intermediates hybrids, or to class all under a common name. I accept the latter as the most simple and reasonable alternative.

The northeastern and northwestern forms of *americanus* may be characterized as follows:

Corvus americanus Aud. AMERICAN CROW. — Wing averaging more than 12.35, tail averaging more than 7.40, culmen averaging more than 1.90, tarsus averaging more than 2.25 inches. Plumage black, glossed with violet reflections; lower parts jet black, glossed like upper parts on neck and breast, and fading into the plain black of belly. Larger and more glossy; length 17.00–21.00, wing 11.90–13.25 (12.36), tail 6.90–8.00 (7.43), exposed culmen 1.80–2.05 (1.92), tarsus 2.20–2.40 (2.27)[1] inches. Habitat: Eastern North America, except southern Florida.

Corvus americanus caurinus (Baird). NORTHWEST CROW.— Wing, tail, culmen and tarsus measurements always (?) less than their average measurements in *americanus*. Plumage black, with violet reflections, rarely decided as in *C. americanus*, nor as constant on lower as on upper parts. Violet of upper parts generally confined to the crown, scapulars, quills, and wing-coverts, with hind neck and interscapular region duller or lacking any gloss. Smaller and less glossy; wing 10.40–12.45 (11.40), tail 6.12–7.60 (6.90), exposed culmen 1.55–1.80 (1.65), tarsus 1.80–2.25 (2.00) inches. Habitat: Northwestern North America west of the Rocky Mountains.

Melospiza lincolni. LINCOLN'S SPARROW.

Melospiza lincolni striata. FORBUSH'S SPARROW.— A comparison of six specimens from Vancouver Island, five from the interior and four from the mainland coast of British Columbia with two from Pennsylvania, three from Mexico, two from Iowa, and one from Fort Simpson, may be thus summarized: Vancouver Island specimens (including two from Comox, the type locality) are not more "olivaceous" on superciliary stripe than those of same season from any other locality. Black markings on back not darker than in specimens from Orizaba, Fort Simpson, or the interior of the British Columbia mainland, nor darker on throat than skins from the interior. In all deference to its describer and the verdict of our committee on nomenclature, I consider *M. lincolni striata* less entitled to recognition than certain subspecies once included, but now stricken from the Check-List.

Vireo gilvus swainsonii. WESTERN WARBLING VIREO. — Warbling Vireos from west of the Rocky Mountains have caused trouble ever since Baird suggested their specific separation from *V. gilvus* under the name *Vireo swainsonii*. Coues and Ridgway recognize them as a subspecies of *gilvus*, the latter giving their habitat as west of the Rockies, but, as is well known, the race finds no place in the A. O. U. Check-List. Swainson's type came from the Columbia River, probably east of the Cascades, but

[1] These measurements of *americanus* are taken from Ridgway's 'Manual.'

the material on which Baird's proposed separation rests is five specimens from the Pacific slope, three of which were obtained at Steilacoom, Washington. The type locality being in the northwest, this race can be ignored only on a comparison of series from this region with Atlantic coast specimens. Owing to the scarcity of specimens from Washington or British Columbia this has heretofore been impossible. The subjoined table supplies the necessary information. The measurements (which are in inches) are all my own and are taken only from skins collected by Mr. Streator and myself in the respective districts named.

	Wing	*Tail*	*Bill from nostril*	*Tarsus*	*Wing*	*Tail*	*Bill from nostril*	*Tarsus*
	Vancouver Island.				West Cascade Slope.			
	2.63	2.00	.27	.62	2.55	1.85	.27	.61
	2.63	2.08	.27	.60	2.64	2.00	.28	.74
	2.58	1.88	.27	.62	2.62	2.05	.27	.64
	2.62	2.00	.27	.63	2.62	1.98	.27	.65
	2.62	1.89	.27	.62	2.60	1.98	.27	.70
	2.65	2.00	.28	.62	2.66	2.00	.28	.63
	2.60	1.99	.26	.63	2.60	1.95	.27	.66
	2.63	1.95	.30	.63	2.65	2.00	.28	.75
Average,	2.62	1.97	.27	.62	2.62	1.97	.27	.67
	East Cascade Region.				Atlantic Coast.			
	2.66	2.02	.28	.65	2.85	2.12	.28	.64
	2.60	1.97	.27	.67	2.67	2.13	.28	.72
	2.60	1 90	.28	.65	2.73	2.10	.34	.65
	2.75	2.08	.29	.63	2.84	2.20	.31	.69
	2.62	2.00	.27	.61	2.82	2.15	.32	.66
	2.55	1.95	.27	.61	2.70	2.03	.34	.65
					2.75	2.01	.32	.66
Average,	2.62	1.99	.28	.64	2.80	2.12	.33	.70

Atlantic Coast averages,	2.77	2.11	.31	.69
Northwest averages,	2.62	1.97	.27	.64
Differences,	.15	.14	.04	.05
Ridgway's averages (eastern).	2.84	2.22	.31	.70
" " (western).	2.69	2.14	.30	.68
Differences,	.15	.08	.01	.02

It will be seen that Northwest skins average about .15 inch larger in length of wing and tail, .04 in bill and .05 in tarsus measurements. These marked differences are of themselves sufficient to make *swainsonii* more distinctly subspecific than many other western forms of eastern species

included in the Check-List; add to this the difference in average coloration of upper parts between Pacific and Atlantic coast specimens and we have all that conservatism can ask. When, however, we include, in a comparison between east and west specimens of *gilvus*, skins from all localities over their respective habitats as defined by Mr. Ridgway, these differences are so diminished that the separation of the two forms becomes questionable. It will be impossible to assign hard and fast lines for the habitat of *swainsonii*. The southern Rocky Mountains furnish many specimens of an intermediate character in color, which are nearly as large as *gilvus* while those of the north are quite distinct across the entire territory west of the Rockies.

For the present it will suffice to include British Columbia, Washington, Oregon and northern California in the habitat of *Vireo gilvus swainsonii*.

Vireo huttoni obscurus. ANTHONY'S VIREO.—This may be considered a rather rare visitor on Vancouver Island. I secured one near Victoria. This specimen, also two secured on the same spot by Mr. Maynard in 1891, and which I had the privilege of examining, belong to the strongly characterized race of *Vireo huttoni* proposed by Mr. A. W. Anthony in 1890. Mr. Anthony's specimens were taken in northwestern Oregon. Those above mentioned considerably extend the habitat of *obscurus* and make it probable that it will be found much farther north.

Sylvania pusilla. WILSON'S WARBLER.

Sylvania pusilla pileolata. PILEOLATED WARBLER.—The differences in coloration between Vancouver Island, Rocky Mountain, Iowa, and Pennsylvania specimens of these forms, as given in the books, is in many cases entirely contradicted by the series in my possession. Examples may be selected from extreme east and west points which defy the most critical eye to detect a difference, save perhaps in the intensity of yellow on the forehead, while darkest eastern specimens may be perfectly matched by skins from Vancouver Island. Comparative measurements are of no value, the average differences between *pusilla* and *pileolata* given by Mr. Ridgway being only .01 inch each in lengths of tail and wing, nor is the comparative color of bill of constant value in the series before me.

If this series may be taken as a criterion of the status of *S. pusilla pileolata*, it has no better claim to recognition in our nomenclature than the late *Dendroica æstiva morcomi*.

Parus hudsonicus columbianus SUBSP. NOV. COLUMBIAN CHICKADEE.—Four specimens of *Parus* from the central Rocky Mountains near Field, British Columbia, taken in a deep forest at an elevation of 5000 feet, differ so materially from *Parus hudsonicus* that it seems proper to separate them. Measurements and coloration of these with those of a series of forty New York, Ontario, Labrador, Great Slave Lake and Alaskan skins, loaned by the Smithsonian Institution, have been taken, and the following characters noted.

SUBSP. CHAR. (Type, No. 3078, ♂, coll. S. N. Rhoads, Field, B. C., Aug. 30, 1892). — Colors much darker throughout. Black of throat jet, without sooty suffusion, its posterior border abruptly defined and lacking

invasion of white tips seen in *hudsonicus*. Bill black, lacking any tinge of brown. Brownish loral area of *hudsonicus* replaced by sooty black and connected by a distinct frontal band of same color. Crown and hind neck slaty drab with brownish tinge obsolete or barely perceptible. Back, rump, and tail-coverts grayish brown as in *hudsonicus*. Wings and tail darker slate gray, the former without the brownish or grayish tips always (?) present in *hudsonicus* and *stoneyi* (?). Sides and flanks chocolate (nearly blackish) brown.

Comparative average measurements in inches of adults are subjoined.

	Wing	*Tail*	*Ex. Culmen*	*Tarsus*
Parus hudsonicus.	2.58	2.55	.27	.61
Parus hudsonicus stoneyi.	2.55	2.60	.31	.64
Parus hudsonicus columbianus.	2.70	2.64	.32	.67

Should a more complete series of *columbianus* prove the constancy of the characters given above, it may be found to merit specific rank, but as the case now stands a humbler position is more tenable.

Regarding the status of *P. hudsonicus stoneyi* in this connexion, we are at much loss because of the scarcity and bad condition of specimens, which also lack data. In size *stoneyi* does not greatly exceed *hudsonicus* except in bill measurements which nearly equal those of *columbianus*. Lighter specimens of *hudsonicus* from Ungava, Labrador, differ but slightly in color from *stoneyi* while the differences between these and *columbianus* are striking.

Mr. Ridgway has suggested to me the propriety of going thoroughly over the whole ground in question. With this in view I would ask the loan of specimens of *Parus hudsonicus* from all parts of its known habitat. Such of these as may be sent to the Academy of Natural Sciences of Philadelphia will be thankfully received and cared for.

Turdus aonalaschkæ pallasii. HERMIT THRUSH.—The presence of this species breeding in the region around Lake La Hache, B. C., as attested by four skins in the collection, further complicates the relationships of this genus in the Northwest. Neither *auduboni* nor *pallasii* was found in any other part of British Columbia. I found *aonalaschkæ* breeding in the Rocky Mountains at Field. It is doubtful if *auduboni* reaches the forty-ninth parallel. If, as seems probable, it be found that *pallasii* and *aonalaschkæ* breed indifferently across common ground in the central and Rocky Mountain regions of British Columbia, without the intervention of intergrades, a more definite separation of the two is necessitated. Owing to the limited series obtained in evidence of this, a satisfactory conclusion cannot now be reached. Two points at least are established; first the breeding of *aonalaschkæ* in the Rocky Mountains; second, the breeding of *pallasii* west of the Rockies and south of the fifty-second parallel.

OBSERVATIONS ON THE KNOT (*TRINGA CANUTUS*).

BY GEORGE H. MACKAY.

THIS bird, which formerly sojourned on these shores in great abundance, and occurs now to a limited extent during its migrations, has been the subject of considerable inquiry as to the cause of its appearing now in such reduced numbers. As each contribution to the subject may add something in assisting correct conclusions I have ventured to present the following résumé, especially of the habits and movements of this bird during its short stay in Massachusetts while on migration. The Knot, Red Breast, or Robin Snipe, is cosmopolitan in its migrations, visiting various portions of either hemisphere. Little is known, however, of its breeding places, and authentic eggs are almost entirely unknown in collections. Lieut. Greely is reported to have discovered an egg with the bird in the vicinity of Fort Conger, in Lat. 81° 33′ (Auk, II, 313). It has been found breeding along the shores of Smith's Sound and the north coast of Grinnell Land. Sabine in 1820 found it nesting in great numbers on Melville Island, and in Parry's first voyage he found it breeding on the North Georgian Islands. Capt. Lyons also in 1823 found it breeding on Melville Peninsula. On July 30, 1876, Mr. Henry W. Fielding noted an old bird with three nestlings at Knot Harbor, Grinnell Land (Baird, Brewer and Ridgway, Water Birds, Vol. I, p. 214). On the west coast of the Pacific it migrates as far south as Australia and New Zealand to winter, passing Japan and China. It also winters in Damara Land, Africa, and in America has been taken as far south as Brazil. The American bird differs only in size from the Japanese bird (*Tringa crassirostris*), which is larger (Seebohm's Plovers, pp. 421, 424). It is abundant during migrations on the coast of British Columbia ('Check List of British Columbian Birds,' by John Fannin). Mr. Ernest E. Thompson ('Birds of Manitoba') also notes it as a spring migrant in Manitoba. Messrs. Sclater and Hudson make no mention of it in their 'Argentine Ornithology,' so if it reaches the southern portion of the South American continent it has escaped their observation.

In Massachusetts the adult birds first make their appearance from the middle to the last of July on their southern migration, the height of their abundance being about the first of August; the latest I have heard of the adults being taken (an adult male) was October 6, 1887, at Monomoy Island, Cape Cod, with two exceptions, when on Dec. 28, 1879, during a thick snowstorm, Mr. Lorenzo Hamilton of Chatham, Mass. (now living at Billingsgate), shot eight old, deep red-breasted birds near Chatham Light from a flock of twenty, all of which had deep red breasts. On Feb. 22, 1892, he also shot two old deep red-breasted birds (all there were) at Billingsgate, Cape Cod. The young gray-and-white birds appear while making their southern migration during the latter part of August to September 10; and the latest I have heard of their being taken was October 5; they generally move south late in September.

In the spring during migration northward some few early birds appear about May 12, and they continue coming, and remain until the first week in June, when all the birds have passed north. I have known of good shooting on June 3, but the height of abundance used to be the last few days in May. The most favorable time to expect them at this season is during fine, soft, south to southwest weather, and formerly they could be expected to pass in numbers between May 20 and June 5. In former times, when such conditions prevailed, thousands collected on Cape Cod, when they would remain from a few days to a week before resuming migration.

That the Knot can withstand our winter climate is shown by the fact that I shot on a shoal adjacent to Muskeget Island, Mass., on March 19, 1890, two Knots, one of which (a male) was saved and is now in the collection of Mr. William Brewster. There had been three in all, and they were all in the gray and white plumage; the one skinned was very fat. The day on which I shot them the most severe northeast snowstorm of the winter prevailed. They had been living in this locality the greater portion of the winter, being observed from the middle of January up to the time they were shot. I was informed, however, that none had been noticed in this locality at this season before. On January 12, 1879, Mr. Outram Bangs of Boston noticed a female in the gray and white plumage hanging in a bunch of Purple Sandpipers (*Tringa maritima*) in a stall in Faneuil

Hall Market, Boston. On inquiry, after purchasing the bird, which is now in his collection, he learned the bunch of birds came from St. John, New Brunswick, and the Knot probably was shot in that locality about that date.

The Knot is a favorite bird with sportsmen, on account of its answering the call whistle and coming to the decoys so readily, often a second and occasionally a third time, after having been shot at, for they are either very tame or very shy according to whether they have been harassed. When shy, and coming to decoys to alight, they barely touch their feet to the sand before they discover their mistake and are off in an instant. They fly quickly and closely together and, when coming to decoys, usually pass by them down wind, most of the flock whistling, then suddenly wheeling with heads to the wind, and up to the decoys. At such times many are killed at one discharge. They are only fair eating, being a little fishy in flavor. They make two notes. One is soft, of two articulations, and sounds like the word 'Wah-quoit' (by which name it is sometimes known on Cape Cod); although uttered low it can be heard quite a distance. This note is particularly noticeable when flocks are coming to the decoys; it has a faint rolling sound similar to the note of the American Golden Plover (*Charadrius dominicus*) under the same conditions, only more subdued and faint. The other is a single note resembling a little honk. These birds will also respond to the note of the Black-bellied Plover (*Charadrius squatarola*) as readily as to their own, when it is given with a whistle.

Knots feed on the marshes and also on the sand flats near the edge of the water, where they find marine insects and their larvæ. Those birds living south of Cape Hatteras feed to a large extent on a small mollusc (*Donax variabilis* Say). They also frequent the flats at night as well as in the daytime. As far as I know I should say their food was the same as that eaten by the Black-bellied Plover. Like them they also eat the larvæ of one of the cut worms (Noctuidæ) which they obtain on the marshes, and some of which I have found still in their throats after they were shot. Mr. William Thompson in his most charming work ('Natural History of Ireland') mentions that there they feed chiefly on minute mollusca, especially *Paludina muriatica* Lam., also on the young of *Littorina rudis*. On the ground they are sluggish, and not given to moving about much; unless

very much harassed they are not nearly so vigilant as their companions, the Black-bellied Plover, but when they have become shy they are exceedingly wary and always on the alert for danger.

When the incoming tide drives the Knots from the flats they seek the marshes, or some shoal which is sufficiently elevated to remain uncovered during high water; they also frequent the crest of the beaches. Here they generally remain quiet until the tide has fallen sufficiently to permit them to return again to the flats to feed. When on the marshes during high water they occupy some of the time in feeding, showing they are by no means dependent on the flats for all their food. They associate and mingle as freely with the Turnstone (*Arenaria interpres*), Black-bellied Plover (*Charadrius squatarola*), and Red-backed Sandpiper (*Tringa alpina pacifica*) as with their own kind, and apparently evince the same friendship toward the two former birds as prevails between the American Golden Plover (*Charadrius dominicus*) and the Eskimo Curlew (*Numenius borealis*). I have heard of but one instance (at Revere, Mass., during a storm) of the Knot being noted in the same flock with adult American Golden Plover. At this time there were three, one of which was shot. I have heard, however, of both adult and young Knots mingling with young American Golden Plover, or 'Pale-bellies,' as they are locally called.

For twelve years past the number of Knots in the spring in the vicinity of Tuckernuck Island has not averaged more than fifty birds, so I am informed on good authority. At this season they sometimes frequent the upland on the island in company with the Turnstone, never doing so, however, in August or September. From the time they are first noted at this latter season they seem to come along quite continuously a few at a time until migration ceases. Knots as a rule are not in the habit of frequenting uplands as they do the marshes. I account for their doing so in this instance in the spring by the fact of there being no marshes in the vicinity, and by their being mingled with the Turnstones which are in the habit of frequenting such places. They are induced in consequence to follow the Turnstones where they lead, this bird showing more determination of purpose than the Knots which frequently yield and follow them. This is not the case with the Turnstones; they often leave the combined flock rather than be led where they do not care to go.

On the Dennis marshes and flats, at Chatham, the Nauset, Wellfleet, and Billingsgate, Cape Cod, and on the flats around Tuckernuck and Muskeget Islands, Mass., they used to be more numerous than in all the rest of New England combined, and being very gregarious they would collect in those places in exceedingly large numbers, estimates of which were useless. This was previous to 1850 and when the Cape Cod railroad was completed only to Sandwich. Often, when riding on the top of the stage coach on the Cape beyond this point, immense numbers of these birds could be seen, as they rose up in clouds, during the period that they sojourned there. It was at this time that the vicious practice of 'fire-lighting' them prevailed, and a very great number of them were thus killed on the flats at night in the vicinity of Billingsgate (near Wellfleet). The mode of procedure was for two men to start out after dark at half tide, one of them to carry a lighted lantern, the other to reach and seize the birds, bite their necks, and put them in a bag slung over the shoulder. When near a flock they would approach them on their hands and knees the birds being almost invariably taken on the flats. This practice continued several years before it was finally prohibited by law. I have it directly from an excellent authority that he has seen in the spring, six barrels of these birds (all of which had been taken in this manner) at one time, on the deck of the Cape Cod packet for Boston. He has also seen barrels of them, which had spoiled during the voyage, thrown overboard in Boston Harbor on arrival of the packet. The price of these birds at that time was ten cents per dozen; mixed with them would be Turnstones and Black-bellied Plover. Not one of these birds had been shot, all having been taken with the aid of a 'fire-light.'

As they appear on our shores each season at about the same date as the Black-bellied Plover, which, however, they formerly always greatly outnumbered, I venture to suggest for the Knots the same possibility of a change of habitat and of lines of migration that I did when considering the cause of that bird's lessened numbers (Auk, IX, 143). I consider the case of the Knots a much more aggravated one than that of the Black-bellied Plover, the Knots having been reduced to a much greater extent in my opinion by having been killed. Besides those destroyed on Cape Cod through the agency of 'fire-lights,' I have reasons for believing that they have been shot also in large numbers on the

Atlantic seaboard (Virginia) in the spring on their way north to their breeding grounds, one such place shipping to New York City in a single spring, from April 1 to June 3, upwards of six thousand Plover, a large share of which were Knots. This was about thirty years ago, but it nevertheless serves to illustrate what kind of treatment these birds received in those days, as well as since, and bears out the current belief of today that the Knots in a great measure have been killed off. In more recent times we find every locality along the shore, where shooting can be obtained, accessible at short notice to sportsmen, who are ever ready to avail themselves of weather conditions likely to land birds; and should any arrive, they are immediately pursued, and those not killed are driven away. Therefore as passing flocks receive no answer to their call of inquiry, and as those birds which have been over the same route a number of times before (having become leaders of migratory flocks) have learned what invariably awaits them in certain localities, the remnants of the once large numbers pass on, carrying their companions with them, being unwilling to risk the death or persecution that awaits them at all times; for there is never any cessation.

It is not my intention to convey the impression that the Knots are nearly exterminated, but they are much reduced in numbers, and are in great danger of extinction, and comparatively few can now be seen in Massachusetts, where formerly there were twenty to twenty-five thousand a year, which I consider a reasonable estimate of its former abundance. Mr. S. Hall Barrett informs me that he has not shot a single old red-breasted bird for the past five years on Cape Cod, although he has been on the ground that they would frequent during the proper season for them to pass, but he has seen about one hundred young, gray-and-white birds a year. His place of observation was Billingsgate Light House, one of the best places for such birds on Cape Cod. In old times he has seen as many as twenty-five thousand birds (estimated) in one year. On the other hand, Mr. C. L. Leonard of Marshfield Hills, Mass., informs me that on Cape Cod, generally near Barnstable, he sees annually about one hundred adult birds with full red breasts (and takes more or less of them), and about one thousand young gray and white birds, from their first arrival until October. This gentleman also informs me that he does not believe after his past fifteen years' experience that these birds

ever change back to the gray and white plumage of the younger birds after once attaining the adult full plumage of brick red on the underparts.

They are still found in greater or less numbers along the Atlantic coast south of Chesapeake Bay. Near Charleston, S. C., Mr. William Brewster noted about one hundred and fifty Knots on May 6 and 8, 1885, and saw a number of flocks on May 13. They were flying by, or were alighted, on Sullivan Island beach. On May 17, 1883, he noted about one hundred of these birds in the same locality. In the spring they pass Charlotte Harbor, Florida, so I am informed, in large numbers, coming up the coast from the south (a flight on May 26, 1890), at which time they are very tame. They are also more or less numerous near Morehead City, North Carolina (where they are known as 'Beach Robins'), from May 15 to 30, their flight being along the beach, just over the surf, at early morning, coming from the east in the neighborhood of Point Lookout, ten or twelve miles away, where they probably resorted to roost. This indicates that these birds were living in that locality. As late as twelve years ago I understand from very good authority that Knots were abundant from May 20 to June 1 on the Magdalen islands. During spring when they were on migration they used to be abundant on Lake Ontario, but I am not in possession of any late data regarding their movements at that point.

To me the Knots are very handsome birds in the full adult plumage; their red, Robin-like breasts and lower parts with their reddish-and-black-spotted backs, make a soft blending of color most pleasing to the eye. The plumage of the female, on the back, is sometimes duller and with less red than in the male, often without any red. It is from their resemblance to the American Robin (*Merula migratoria*) that their local names of Robin Snipe and Beach Robins (the latter on the North Carolina coast) have been given them. The plumage of the young birds (sometimes called 'Whitings' on Cape Cod, and which are usually smaller than the adults) is of a general slate gray for the upper parts, and white underneath, with neck, breast, and sides streaked with fine slate-colored lines. This is so unlike the plumage of the old birds that they are often mistaken for a different species by those not familiar with them.

I desire to call attention to the universal statement current in

the literature of the subject that the adults assume what is designated as the winter plumage, that is, gray above and white underneath, similar to the plumage of the young birds. I can but believe that such statement is an error of long standing, it being my conviction that such gray and white plumage is confined exclusively to the younger birds, and is retained by them in varying stages up to three or four years of age, or in other words until such time when they change it (never to reappear in it) for that which is known as full spring plumage. I have yet to see what I understand to be an old bird, from any locality in any season, in the gray and white plumage. Lest I may be misinterpreted, permit me to add that as these birds do not, in my opinion, reach the height of their plumage until they are three or four years old my remarks apply only to birds of that age or over. Mr. Geo. A. Tapley of Revere, Mass., who is a close observer and has shot as many of these birds as any one in Massachusetts, and whose shooting experience extends over a period of about fifty years, informs me that he has in the past shot in every year a good many old birds in full plumage on Cape Cod, Mass., in August and September. He says he never saw what he calls an old bird in the gray and white plumage. Mr. S. Hall Barrett of Malden, his fellow sportsman and of the same number of years' experience, reiterates Mr. Tapley's statements, and I am myself in full accord with both. Owing to the variation of plumage a large series of these birds is imperative in order to arrive at satisfactory results.

After examination of thirty-eight specimens of adult Knots, twenty-four of which were females, I came to the conclusion that there is no constant feature in the plumage of either sex, whereby they can be distinguished one from the other by the ordinary observer, both sexes varying considerably. Some of the females have no red on the back and scapulars, others have a little, and still others as much as the males. In this respect the males are much more constant in their plumage than the females appear to be. In size both sexes are apparently alike. The lower parts of adult birds of both sexes, from the bill to the abdomen, are of a dark vinaceous cinnamon varying in intensity. An examination of eighteen specimens of what I understand as the younger birds, shows their upper parts to be, in general, gray, with the neck, breast, and sides gray, streaked with V-shaped

lines or marks; the lower parts and abdomen are white. This stage of plumage seems constant with only a slight occasional variation. I cannot say as much, however, for the plumage of the older birds. A considerable portion of these young birds are smaller, while some are about the same size as the adults.

Full-plumaged specimens of the Knot are even now not easy to obtain in New England, and the day is not far distant, if it is not already here, when the fine series belonging to Mr. William Brewster will be a prize indeed. To him I am much indebted for their use, also for being able to refer to several of them which, while they are not all I could desire as regards dates of capture, are, together with a few others I have, the best I am able to obtain at this time, to illustrate the point at which I take issue. If the old birds migrate north in June, in their full spring plumage, when they return from the middle of July to September they would have changed, I should suppose, at least in part, if the old statement is correct, into the so-called winter plumage of gray above and white underneath. How is it, then, that sportsmen who have shot these birds all their lives have been able to take so many in full adult plumage on Cape Cod in July, August, September, and occasionally in October? The following specimens are in Mr. Brewster's collection. No. 18,945 is a male, but not an old bird, taken Oct. 6, 1887, at Monomy Island, Cape Cod, by J. C. Cahoon. The breast and lower parts of this bird are washed with pale cinnamon red. No. 19,188, taken at same place by same collector, is a rather young bird with only a cinnamon shading on breast and lower parts. No. 12,727, a male taken at Shelter Island, N. Y., Sept. 6, 1883, is quite an old bird and has considerable cinnamon red on breast and lower parts. No. 1363 (Bangs collection), a young bird taken at Isles of Shoals, Aug. 24, 1877, has only a few red feathers on the breast. The Smithsonian Institution has a female, No. 78,419, taken Sept. 1, 1879, at Big Pass, Florida, which has the entire lower parts, including throat, pale cinnamon red; it is not an adult, however. I have an adult male taken by N. E. Gould on July 15, 1889, at Chatham, Mass.; the entire lower parts from the bill are of a clear deep vinaceous cinnamon, without a white feather. I have a specimen collected by J. C. Cahoon, July 30, 1886, on Cape Cod; it is an adult female with lower parts cinnamon red from base of bill, with a few white feathers intermixed.

I have also a male taken Aug. 17, 1889, by N. E. Gould on Cape Cod; the whole lower parts of this bird from the bill to the abdomen are cinnamon red. Mr. Henry W. Abbot and Mr. Richard D. Ware, of Boston, visited the Magdalen Islands the past summer. On Aug. 23, 1892, they shot a full-plumaged Knot; on Aug. 30 two more were obtained with full red breasts and mottled backs; on Sept. 5 still another full-plumaged bird was taken. There were in addition two or three others in similar plumage which they secured, but for which the exact dates cannot be fixed. In Mr. Brewster's collection are six Knots all of which were shot on May 11, 1885, in South Carolina; one of them is all gray above and white underneath; one is of a deep vinaceous cinnamon on the underparts from the bill to the abdomen; and four are in varying stages of plumage between. It is an interesting little group, showing the development of plumage, on the same date, of birds of different ages.

I append some notes taken by an old shooting friend, Mr. Augustus Denton, which he gave me in 1877; those for the last five years are my own. They are for Cape Cod, Mass., unless otherwise specified. They serve to indicate the movement of the Knots northward in the spring.

1858, May 27.— First birds shot; most on the 31st.

1859 } .— Practically the same as above.
1860 }

1861, May 27.— First birds shot.

1862.— Very few birds.

1863, May 27.— First birds shot.

1864, May 27.— First birds shot.

1865, May 26.— First birds shot. Some birds in August, shot 26 this month.

1866.— Very few birds.

1867, May 27.— First birds shot; most on the 29th and 31st.

1868, May 23.— First birds shot; most on the 27th to 30th.

1869, May 27.— First birds shot, only very few birds.

1870.— Law prohibiting shooting in the spring.

1871, May 17.— First birds shot, earliest I have ever known them to appear, best shooting up to the 20th. A good many birds in August. Law prohibiting spring shooting repealed.

1872, May 25.— First birds shot, numerous this year.

1873, May 19.— First birds shot, abundant until the 31st.

1874, May.— Best shooting up to the 29th. Few birds in August.

1875, May 14.— First birds shot, best shooting 29th. Few birds in August.

1876, May 20.— First birds shot, best shooting on the 26th.

1877, Sept. 28.— Shot one on Nantucket Island, Mass.

1884, Aug. 25.— Shot two on Nantucket Island.

1891, about Aug. 20.— Twenty shot on Tuckernuck Island, Mass.

1891, Sept. 7.— Quite a flight of young birds passed Essex, Mass.; wind northeast with rain, storming hard.

1892, May 11.— Tuckernuck Island, first birds seen (three). June 1, seven seen (adults). Aug. 2, Muskeget Island, Mass., I saw eight Knots, and shot one which had some red feathers on the breast, and was very fat. Aug. 3, Muskeget Island, saw one, with an apparently full red breast, but failed to secure it.

SUMMER BIRDS OF INDIANA AND CLEARFIELD COUNTIES, PENNSYLVANIA.

BY W. E. CLYDE TODD.

WHEN we come to examine and compare the summer birds of Beaver, in Beaver County, Pennsylvania, with those found at that season in the Buffalo Creek region of Butler and Armstrong Counties, about forty miles directly to the eastward, a striking difference at once becomes apparent. This difference consists in the entire absence or rarity in the latter locality of a number of more or less typical Carolinian species which are characteristic birds at Beaver, and in the infusion instead of certain Alleghanian and Canadian forms. As might be expected, there is a corresponding difference in the flora of the respective sections, which is especially marked in the character of the forest, coniferous trees of three species,—white pine (*Pinus strobus*), pitch pine (*Pinus rigida*), and hemlock (*Tsuga canadensis*),—which are rather local and not common in Beaver County, predominating in the other locality. But it is to be observed that this preponderance of conifers exists only in the vicinity of streams, the higher upland forests differing little, if at all, from those of like situation in Beaver County, though here and there a solitary conifer may be found.

In order to investigate the country still farther to the eastward, in Indiana County, I spent four days, June 22 to 25, 1892, in this

region, my stopping-place being a farmhouse two miles east of the village of Two Lick, on Two Lick Creek, a few miles south of the town of Indiana and near Chestnut Ridge. This ridge is the most western range of the Appalachian chain in Pennsylvania, entering the State from the south about the middle of the southern boundary of Fayette County, and terminating a short distance east of the place of my observations. At this point it becomes nothing more than a series of broken ranges of high hills, which to the northward finally disappear into the general level. The elevation for this part according to the contour map of the U. S. Geological Survey is 1500 feet, but there is good reason for believing that to the southward the Ridge attains a height of 2000 feet, since the town of Ligonier, situated east of the range, in Westmoreland County, is known to be 1748 feet above tide.

I found this locality far poorer in conifers than the Buffalo Creek region which I had just left, and I was told that they predominated only in the northern and eastern parts of the County, Pine Flats, fourteen miles east from Indiana, being said to be the western limit of their abundance here. No pines at all were discovered, and the hemlock was confined to the bottom lands of Two Lick and Yellow Creeks, and even there it occurred only at intervals. However, where it was found at all it was very often to the almost complete exclusion of other forest trees. Progress through such gloomy tracts of woods would have been practically out of the question had it not been for an occasional cattle-path or a small stream flowing through the midst, so dense were the thickets of laurel (*Kalmia latifolia*) and rhododendron (*Rhododendron maximum*) beneath. This growth, as well as that of the hemlocks, often extended a short distance up the adjoining hillsides, especially if they were steep and had a northerly exposure, though the laurel in places composed thickets by itself, while the rhododendron was not found outside the shade of the hemlocks.

These tracts of hemlock forest in the creek bottoms, with their undergrowth of laurel and rhododendron, interspersed with small pools of stagnant water, were far more prolific in bird life than the hills and uplands above, although of so limited extent in comparison. Black-throated Blue, Black-and-yellow, Blackburnian, and Blue Yellow-backed, Warblers were the characteristic birds of such cool and shady recesses, within which they

were abundant, but outside of which they were not found at all. Several other species were more or less common also in such situations.

The high hills in which Chestnut Ridge terminates are clothed from base to summit with a deciduous forest, of which oaks of several species and chestnuts are the most prominent trees. The latter seemed to be more abundant near and on the summit than lower down. Black-throated Green Warblers were numerous throughout this woodland, where about the only other birds found to any extent were the Red-eyed Vireo, Golden-crowned Thrush, Black-and-white Warbler, Wood Thrush, and White-breasted Nuthatch, but none of these were nearly so common as the species which were confined to the hemlocks. At some points, where the original forest had been cut and second-growth and tracts of bushes and scrub had taken its place, the Chestnut-sided Warbler, Yellow-breasted Chat, Brown Thrasher, and Catbird were found, as well as a single individual of the Cerulean Warbler, which species was otherwise observed only in the open woods of the uplands outside of Chestnut Ridge. The cultivated districts were found almost altogether in these uplands, the birds of whose orchards, fields, and woods did not differ materially from those found in like situations in Beaver County.

In considering the faunal relations of the locality, we find that three species occur which are usually considered to belong to the Canadian Fauna, namely, *Dendroica cærulescens*, *Dendroica maculosa*, and *Dendroica blackburniæ*. It is a noteworthy fact that all these birds, which are abundant here in suitable situations, are rather uncommon in the Buffalo Creek region, while on the other hand two of the common relatively northern species of this latter locality—*Sylvania canadensis* and *Turdus fuscescens* — are here apparently altogether wanting.

Five species were found whose breeding range to the southward is limited to the Alleghanian Fauna: *Empidonax minimus*, *Helminthophila chrysoptera*, *Dendroica pensylvanica*, *Dendroica virens*, and *Parus atricapillus*.

Ten species were observed whose breeding range to the northward is likewise limited to the Alleghanian Fauna: *Colinus virginianus*, *Antrostomus vociferus*, *Sturnella magna*, *Icterus galbula*, *Ammodramus savannarum passerinus*, *Pipilo erythrophthalmus*, *Piranga erythromelas*, *Galeoscoptes carolinensis*, *Harporhynchus rufus*, *and Turdus mustelinus*.

The six following more or less typical Carolinian species were found: *Empidonax acadicus*, *Cardinalis cardinalis*, *Dendroica cærulea*, *Seiurus motacilla*, *Icteria virens*, and *Parus bicolor*.

It is to be remarked that the three species constituting the Canadian element are not the most typical of that fauna,[1] and furthermore that they are wholly confined to the deep hemlock woodland of the creek bottoms, the coolness of whose forest shade seems to become the equivalent of a higher altitude, as another writer has recently remarked.

It is, moreover, to be observed that only a few typical Carolinian forms occur, while the Alleghanian element is the most prominent as to number of species. On the whole, consideration of the above facts seems to bear out the conclusion that this region belongs to the Alleghanian Fauna, with, on the one hand, a slight tinge of lower Canadian forms where local conditions are favorable for their existence, and on the other a very considerable Carolinian element. Compared with the Buffalo Creek region it seems to be somewhat more southerly (in a faunal sense), since the relatively northern birds are more local in their distribution and are fewer, in number of species, though represented by a greater number of individuals.

But one paper containing any information on the birds of Chestnut Ridge has so far been published (that by Mr. C. H. Townsend in the Proceedings of the Philadelphia Academy of Natural Sciences for 1883, pages 59 to 68), and this information is so meagre as to be practically valueless for comparison. Of the birds of the country between Chestnut Ridge and the main Alleghany Mountains, including Laurel Hill, we know nothing as yet.

Sixty-five species were observed during my stay, of which the following is a list.

Actitis macularia.—Common at certain favorable points along Two Lick Creek, but observed also about marshy spots in the upland.

Colinus virginianus.—Quite abundant in the upland meadows and grain fields.

Bonasa umbellus.—Met with but once, in the laurel and rhododendron thicket of Yellow Creek bottom.

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[1] *Cf.* Allen, in Stone, Proc. Phila. Acad. Nat. Sci., 1891, 433, foot-note.

Meleagris gallopavo. — On the last day of my stay a Wild Turkey hen, accompanied by three young less than a week old, appeared near the house where I was staying. It is quite possible that there were more young, but these were all that could be found. They were captured and taken into the barn, with the object of decoying the parent inside and capturing her also. She refused to enter, however, but presently flew to the roof, and afterwards lingered about for some time, and doubtless was in the vicinity when I arrived upon the scene, but I was prevented from making a careful search by lack of time. I was informed that Wild Turkeys were tolerably common in this county, and did considerable damage in the grain fields; on several occasions nests with eggs are said to have been found.

Zenaidura macroura.—Common everywhere, except in the deep woods.

Accipiter velox. — One observed near the summit of Chestnut Ridge.

Buteo borealis. — A pair seen circling over the summit of Chestnut Ridge.

Coccyzus americanus. — Observed but twice.

Ceryle alcyon. — Found along Yellow Creek on one occasion. From the lack of banks suitable for nesting purposes I should judge that it was not numerous.

Dryobates pubescens.—Found in the forest.

Melanerpes erythrocephalus. — One individual noticed in the upland, between Two Lick and Homer City.

Antrostomus vociferus. — Several were heard.

Chætura pelagica — Seen but once.

Trochilus colubris. — An individual observed along Two Lick Creek, at the village.

Tyrannus tyrannus. — Common. Found in orchards and at some points along the streams.

Myiarchus crinitus. — Not common.

Sayornis phœbe. — Common.

Contopus virens. — Common in the deciduous forest.

Empidonax acadicus. — This species was fairly abundant throughout the forests of the creek bottoms and was often found higher up along the courses of smaller streams.

Empidonax minimus. — A single pair was observed in the trees surrounding the house where I was staying.

Cyanocitta cristata. — A few observed.

Corvus americanus. — Abundant.

Molothrus ater. — A small party was noticed in an upland pasture between Two Lick and Homer City.

Agelaius phœniceus. — Found commonly in and about the upland meadows and streams.

Sturnella magna.— Not uncommon in the upland.

Icterus galbula. — Two or three were found in orchards about houses.

Quiscalus quiscula æneus. — Found in the same situations as the last species, but more common.

Spinus tristis. — Numerous everywhere, except in the forest.

Poocætes gramineus.— Common in the pastures and along the roadsides.

Ammodramus savannarum passerinus. — One pair was met with, frequenting a pasture field across the road from the house.

Spizella socialis. — Common and familiar as usual.

Spizella pusilla.—Numerous in waste pastures and in the bushy growth along fences.

Melospiza fasciata.—Abundant; found in its usual haunts.

Pipilo erythrophthalmus.—Common in briery thickets and on the edges of the woods.

Cardinalis cardinalis. — Several pairs were found, all in second-growth bushy thickets, both in the creek bottoms and on the hillsides.

Habia ludoviciana. — The Rose-breasted Grosbeak is one of the most abundant birds of this region. It does not affect the oak woods of Chestnut Ridge, nor yet the denser parts of the hemlock forest, but prefers the rich woods that border this last, as well as the upland woods near streams, and the tracts of second-growth interspersed.

Passerina cyanea.— This bird was found commonly in its usual haunts of bushy, briery thickets along the edges of the woods.

Piranga erythromelas.— Another very abundant species, especially partial to the hemlocks.

Petrochelidon lunifrons.— Observed about farm buildings, but not so numerous as the next species.

Chelidon erythrogaster.— Abundant about farm buildings.

Vireo olivaceus. — Very abundant throughout the woodland, in the bottoms and on the hilltops.

Vireo gilvus.—One pair was noticed in an orchard surrounding a farmhouse.

Mniotilta varia.—This species was one of the very few that were uniformly common in the hemlocks, in the second-growth, and in the oak forest of Chestnut Ridge.

Helminthophila chrysoptera.—But one observed,—on the edge of a wood on the bank of Two Lick Creek.

Compsothlypis americana.—Very common in the hemlocks, where its humming note could be heard continually. It usually kept high up in the very tops of the trees.

Dendroica æstiva.— Found mostly in the orchards about farmhouses; but two nests, one containing young, were discovered in a growth of willows fringing Two Lick Creek just behind the village.

Dendroica cærulescens.—This Warbler was confined to the hemlock forest of the creek bottoms, where it was abundant and in full song, haunting the dense laurel and rhododendron thicket beneath, though sometimes mounting to the trees.

Dendroica maculosa.— Equally abundant with the last species, and like it confined to the hemlocks and undergrowth below, where its sprightly song was constantly heard.

Dendroica cærulea.— Much to my surprise I found the Cerulean Warbler quite common, and musical, in the dry, open, oak woods of the uplands, though the only specimen secured was taken in a tract of dense second-growth on a creek hillside.

Dendroica pensylvanica.— Only two individuals noted, both males in full song, observed in a scrubby patch of briers, bushes and young trees, fringing a forest, on a creek hillside. I have reason to believe that this species was more common than it appeared to be.

Dendroica blackburniæ.— Another of the relatively northern species found exclusively in the conifers of the creek bottoms, where its flaming breast flashed in and out of the hemlocks. Not quite so numerous, however, as *D. cærulescens* and *D. maculosa*.

Dendroica virens.— This bird would be expected to occur most commonly in the hemlock forest, and though it actually was found on the edges of this to some extent, I was not a little surprised to discover that it was more numerous throughout the high oak and chestnut woods that cover Chestnut Ridge from base to summit, always keeping high in the treetops.

Seiurus aurocapillus.— A very common species, found throughout al kinds of woodland.

Seiurus motacilla.— A single pair recorded as frequenting a small stream flowing through the laurel and rhododendron growth in the hemlock forest of Yellow Creek bottom.

Geothlypis trichas.— Quite common, at intervals, in the waste ground along the banks of Two Lick Creek.

Icteria virens.— A few pairs of this distinctly southern species were noticed in the thickets to which it is always so partial.

Galeoscoptes carolinensis.— Common in briery thickets.

Harporhynchus rufus.— One pair accompanied by their young were seen in a thicket.

Sitta carolinensis.— Rather common throughout the woodland.

Parus bicolor.— A pair observed on one occasion in a yard around a dwelling.

Parus atricapillus.— Two noticed with the pair of Tufted Titmice above mentioned, and later on a pair accompanied by their now almost fully-fledged young.

Turdus mustelinus.— Common throughout the woodland.

Merula migratoria.— Abundant as usual.

Sialia sialis.— Several observed in an upland pasture on one occasion.

Clearfield County lies to the northeast of Indiana County, which it borders on the west to some extent. As a whole its elevation is greater, everywhere being above 1500 feet, and over a considerable area more than 2000 feet, this latter region including the Alleghany Mountains on the extreme southeastern part of the County and the somewhat less elevated portion lying immedi-

ately to the west, and extending for some distance into Indiana County. My notes were all made in the vicinity of Coalport, a mining town near the southern border of the county. This point was chosen because of its intermediate position with reference to Cresson on the one hand, whose summer birds Mr. Dwight has studied,[1] and DuBois, in the extreme northwestern part of Clearfield County, on the other hand, of whose breeding birds the Department of Agriculture possesses a very full and interesting manuscript list, compiled by Dr. Walter Van Fleet. This list includes nearly all the relatively northern species given by Mr. Dwight, as well as several others which he did not find, and, taken in connection with the present paper, goes to prove the correctness of Mr. Dwight's surmise that "much of northern and western Pennsylvania is at an altitude which, when combined with forest, cannot fail to attract birds of the Canadian avifauna." The influence of the character of the forest upon the distribution of birds was illustrated at Coalport where the extension of coniferous forest to the uplands was accompanied by a corresponding increase in the number and abundance of northern birds. These woods, composed almost wholly of *Pinus strobus* and *Tsuga canadensis*, were found on the hilltops and in the bottoms. *Pinus rigida* was not observed. The red-berried elder (*Sambucus pubens*) was another abundant and characteristic plant there, forming thickets at favorable points.

The country surrounding Coalport, like most of western Pennsylvania, is of a broken, hilly nature, intersected by numerous small streams. My collecting was mostly done in a tract of upland woods lying on both sides of one of these streams, where the slope was not steep. It was second-growth for the larger part, and in places quite bushy, though the numerous cattle-paths which penetrated it in all directions rendered progress through it quite easy. This proved to be a favorite place for Blue Yellow-backed, Black-throated Blue, Black-and-yellow, Blackburnian, Black-throated Green, and Canadian, Warblers, all conspicuously musical. Here, too, Hermit Thrushes were most numerous, and Snowbirds were frequently met with, as well as the only Winter Wren noticed. Several pairs of Chestnut-sided Warblers were found here also, but they were not half so common as the other Warblers mentioned.

[1] Auk, IX, 1892, 129-141.

On June 30, after exploring a swampy rhododendron thicket where I found northern Warblers numerous, among them several pairs of Water-thrushes, I came to one of the few tracts of original forest that are left in this neighborhood. I found it to be a thick wood of white pine and hemlock, with no undergrowth to speak of excepting along a small stream flowing through its midst. Scattered here and there were enormous trees of both these kinds, three and four feet through at the base, and rearing their lofty heads far above the general level of the treetops. Here is the haunt of the Blackburnian and Black-throated Blue Warblers, whose songs are heard on every hand, while from high overhead come the slender filing notes of the Black-throated Green Warbler and the cicada-like humming of the Blue Yellow-backed. Snowbirds, too, were occasionally seen, and Wood Thrushes.

Only fifty-five species were recorded during my stay at Coalport, which was from June 28 to July 2, 1892. That this is less than half the actual number breeding is evident by a comparison with Mr. Dwight's list for Cresson and Dr. Van Fleet's for DuBois. Eight species, all except two very common, were found whose affinities are with the Canadian Fauna, as follows: *Junco hyemalis*, *Dendroica cærulescens*, *Dendroica maculosa*, *Dendroica blackburniæ*, *Seiurus noveboracensis*, *Sylvania canadensis*, *Troglodytes hiemalis*, and *Turdus aonalaschkæ pallasii*.

Four in their southern breeding limit characterize the Alleghanian zone: *Empidonax minimus*, *Dendroica pensylvanica*, *Dendroica virens*, and *Parus atricapillus*.

Eight in their northern breeding limit likewise characterize the Alleghanian zone: *Antrostomus vociferus*, *Sturnella magna*, *Icterus galbula*, *Pipilo erythrophthalmus*, *Piranga erythromelas*, *Galeoscoptes carolinensis*, *Harporhynchus rufus*, and *Turdus mustelinus*.

These facts seem to justify the conclusion that the district is Alleghanian in its fauna, with a very decided Canadian element however, which latter is probably greater than was apparent from my limited observations.

The following is a complete list of the birds observed during my stay.

Bonasa umbellus. — Only one individual seen; found in the second-growth.

Zenaidura macroura. — Common in the open, especially near houses.

Accipiter velox. — One, which from its actions doubtless had young near by, was seen on the edge of a dense coniferous forest.

Accipiter cooperi. — A single pair, also evidently with young, were the only ones observed.

Dryobates villosus. — Several seen in the timber.

Dryobates pubescens. — Not uncommon in the woodland.

Melanerpes erythrocephalus. — But one bird noted.

Colaptes auratus. — Numerous everywhere except in the deep woods.

Antrostomus vociferus. — Numbers heard every night.

Chordeiles virginianus. — A few observed on one occasion.

Chætura pelagica. — Quite common.

Trochilus colubris. — Seen but once.

Tyrannus tyrannus. — A pair had a nest in one of the trees near the house where I was staying.

Myiarchus crinitus. — Not common; one pair was observed, whose nest was in the top of a tall forest tree.

Sayornis phœbe. — A single individual was met with near a house on the outskirts of the town.

Contopus virens. — Rather common, numbers being seen daily, mostly on the edge of the woods.

Empidonax minimus. — One pair observed in the trees near the house, in one of which they must have had a nest.

Cyanocitta cristata. — Frequently noticed in the woodland, and sometimes about houses.

Corvus americanus. — A very common species almost everywhere.

Sturnella magna. — Quite common in the open fields, where it was found daily.

Icterus galbula. — This species, although not actually observed by me, is yet entitled to a place on the list from the fact that I was shown, for identification, an example of its nest which had been taken a few years before and preserved as a great and rare curiosity for this part of the country.

Spinus tristis. — Seen on only one occasion, — though perhaps more common than was apparent.

Poocætes gramineus. — Found commonly in its usual haunts.

Spizella socialis. — Abundant throughout the open.

Junco hyemalis. — This species I found at intervals throughout the forest, and in some places it was fairly abundant. Its favorite haunts were the edges of woods, tracts of scrub, and rich second-growth woods, though some were detected in the depths of the original hemlock and pine forest, where they were usually found hopping about on the ground. In other situations it was the rule to find the males perched in the very tops of some tall tree which had been left standing, singing for hours at a time. Although so common, various circumstances unfortunately conspired to

prevent my preserving more than one specimen — a female. This was submitted to Mr. Ridgway to learn if it bore any relationship to *carolinensis*, and he has very kindly compared it and in a note to me states as follows: "Your Junco from Coalport, Pa., is *very* close to *J. h. carolinensis*. In fact, is quite typical of that race as to color of plumage and bill, but bill is too slender. Possibly a larger series of female *carolinensis* would show specimens with bill equally as slender, but we have only the two specimens." It would of course be out of the question to conclude that the Snowbirds of this section all belong to this subspecies on the evidence of a single specimen, especially in view of Mr. Dwight's recent researches on the subject. I regard the bird secured as being merely an extreme case.

Melospiza fasciata. — Abundant in suitable situations everywhere.

Pipilo erythrophthalmus. — A few found in the second-growth.

Habia ludoviciana. — Abundant everywhere except in the original forest.

Passerina cyanea.—Of frequent occurrence; found mostly along the roadsides.

Piranga erythromelas.—Abundant in the woodland, especially so in the hemlocks.

Chelidon erythrogaster.—This species, the only Swallow found, was very abundant about farmhouses.

Ampelis cedrorum.—Numerous; seen every day in the trees about the house.

Vireo olivaceus.—Common, most so in the second-growth.

Mniotilta varia.—This species seemed to share in the general abundance of Warblers which is so characteristic a feature of the avifauna of this locality, being much more numerous than in any other section I have visited heretofore. It frequented the second-growth for the most part.

Compsothlypis americana.—Found in the original forest as well as in the second-growth, and in both these situations abundant, but usually keeping high up.

Dendroica æstiva.—Met with only about houses, and apparently not common.

Dendroica cærulescens.—Abundant throughout both the second-growth and the original forest.

Dendroica maculosa.—Very abundant in the same situations as the last species, but as a rule keeping lower down in the bushes and undergrowth.

Dendroica pensylvanica.—Numerous in the second-growth, but not nearly as abundant as several other Warblers, in spite of the apparent suitability of the place to its needs.

Dendroica blackburniæ.—Another very abundant species, met with both in the second-growth and in the original forest.

Dendroica virens.—Abundant throughout the woodland in all situations.

Seiurus aurocapillus.—Abundant everywhere in the woods.

Seiurus noveboracensis.—Several pairs were met with in a swampy rhododendron thicket in a semi-wooded bottom, along a small stream.

Geothlypis trichas.—Rather common about the thicket where the last species was noticed, and seen also elsewhere. One individual was observed whose song was peculiar, an extra syllable being added, whose timbre most resembled that of the Kentucky Warbler's chirp.

Sylvania canadensis.—Not observed in the depths of the original forest, though perhaps found there to some extent; abundant in the thickets and in the second-growth, especially about damp places, where its sprightly song was constantly to be heard.

Galeoscoptes carolinensis.—Abundant in the second-growth as well as about dwellings.

Harporhynchus rufus.—A few observed.

Troglodytes aëdon.—Four pairs in all were noted, which is a larger number than I have ever before met with in an equal extent of territory. All were found near dwellings, except one which haunted a deserted saw-mill on the edge of a wood.

Troglodytes hiemalis.—One pair only met with, in the denser second-growth, where I listened to its enchanting song, and on the last day of my stay succeeded in securing it.

Sitta carolinensis.—Of infrequent occurrence.

Parus atricapillus.—A pair observed constantly near the house, in the immediate vicinity of which they no doubt had a nest.

Turdus mustelinus.—Common throughout the woodland.

Turdus aonalaschkæ pallasii.—Fully as numerous as the last species; but, unlike it, found mostly in the more open woods and the second-growth.

Merula migratoria.—Found commonly about houses.

Sialia sialis.—A few observed by the roadside on one occasion.

DESCRIPTION OF A NEW JUNCO FROM CALIFORNIA.

BY LEVERETT M. LOOMIS.

Junco pinosus, new species. POINT PINOS JUNCO.

SP. CHAR. — Most nearly like *J. h. thurberi*, but throat, jugulum, and fore breast slate-gray, varying to dark slate-gray, and upper portions of head and neck slate-gray, varying to blackish slate; bill averaging broader and longer.

♂ *ad.* (No. 278, museum of Leland Stanford Junior University, vicinity of Monterey, Cala., July 4, 1892; Leverett M. Loomis). Upper part of head and neck blackish slate, changing, on sides of head and neck, to slate-gray on throat, jugulum, and fore breast; this dark color being abruptly defined against the colors of the body; interscapulars and scapulars pale chestnut; rump gray, tinged with chestnut; posterior part of breast, abdomen, and lower tail-coverts white; sides faintly washed with vinaceous-buff; two outer rectrices wholly white, the third partially white, the others dark brown; wings dark brown, more or less edged with chestnut and whitish.

This type specimen is in rather worn plumage. Of three other males (all taken during the first two weeks of July) one is almost an exact counterpart of the specimen described, the other two represent a darker and lighter phase in the shade of the slate-gray of the fore-neck and breast and in the blackish slate and dark slate-gray of the upper part of the head and neck.

♀ *ad.* (No. 281, museum of Leland Stanford Junior University, vicinity of Monterey, Cala., July 4, 1892; Leverett M. Loomis). Similar to the male, though smaller, with color of anterior parts grayer, especially the throat and sides of head. The chestnut of the back is deeper than in any of the males. This is also true in the only other female I preserved. Except on the throat the second female is darker anteriorly than the palest male; the dimensions of the male, however, are considerably greater.

♂, ♀ *hornot.* (Description based upon two males and two females taken during the first fortnight of July). Above pale chestnut, more or less slightly tinged with slaty on crown, narrowly streaked with blackish, the streaks predominating on top of head; below white, tinged in a varying degree with buffish, and streaked, except medially, with dusky, thickly on breast and jugulum and more or less sparsely on throat and sides; sides of head with colors and markings of upper and lower parts variously blended; wings blackish, broadly edged on inner secondaries and greater coverts with pale chestnut; middle coverts less broadly edged and with greater coverts tipped with buffish, forming two inconspicuous bars; primaries edged with whitish, shading into the chestnut of secondaries; inner rectrices blackish, margined with pale chestnut; outer one wholly white, second chiefly white, third with or without a white spot.

DIMENSIONS OF ADULTS (in millimetres).

No	Sex	Length	Wing	Tail	Chord exp. culmen	Width upper mandible at base	Tarsus	Remarks
277	♂	152.40	73.15	68.58	11.68	5.84	19.56	
278	♂	147.32	71.63	63.50	10.92	5.84	20.32	Type
279	♂	144.78	70.36	66.04	10.67	5.84	20.32	
280	♂	152.40	72.39	67.31	10.92	5.84	20.32	
281	♀	144.78	67.31	66.04	10.67	5.84	18.54	Type
282	♀	147.32	68.58	63.50	10.67	5.33	19.56	

This Junco is distinguished at a glance from *thurberi*, which it appears to approach nearest, by the decided slate-gray aspect of the fore breast, jugulum, and throat. The palest female *thurberi* I have seen is distinctly darker than the darkest male *pinosus* of the series. The average greater length and breadth of the bill is also a prominent character when the two birds are compared. The color of the bill and the color of the eyes were not noted in the field, which is to be regretted, as additional characters might have been afforded by their determination.

I have described this new Junco provisionally as a distinct species, because the material within my reach has not shown that it intergrades with *thurberi* or any other form. The name chosen, *pinosus*, is from Point Pinos, the place of discovery, which forms the south side of the entrance of Monterey Bay. I first met with it in a pine grove on the reservation of the Point Pinos Lighthouse, June 21, 1892, my first collecting day in the locality. Subsequently I found it was a common bird, frequenting the more open places in the pine woods which largely cover the high, cold promontory of Monterey.

The fact that a Junco should be found breeding at the sea level so far south in California is very significant and in itself is enough to suggest the existence at least of a local race. It will be interesting to learn the status of the birds breeding in the Coast Range, particularly those of Santa Clara County.

Since the above was penned I have submitted the specimens described to Mr. Ridgway and he writes me: "I have examined them carefully, and have not the slightest difficulty in recognizing the marked differences presented by your birds from a series of *J. h. thurberi*. There can be no question as to their distinctness."

ADDITIONS TO THE LIST OF MANITOBAN BIRDS.

BY ERNEST E. THOMPSON.

Since the publication of my notes on 'The Birds of Manitoba,'[1] I have been able to make a number of additions to our list of Provincial birds. These are chiefly the results of my own trip to the Province in 1892, but important assistance has been received from others and is duly acknowledged in place.

Ardea egretta. AMERICAN EGRET. — A fine specimen of this bird was shot on Duck Bay, Lake Winnipegoosis, in 1888, by Mr. David Armit. Through the courtesy of this gentleman, and also of Mr. Wm. Clarke, the Chief Factor at Winnipeg, who sends me the bird, I am enabled to examine and report fully. It is an adult in full plumage. Length, 40½ inches; beak, 4½; wing, 15½; tarsus, 6¼. This is, I believe, the northernmost record for the species.

Grus canadensis. LITTLE BROWN CRANE. — A specimen of this bird was mounted in Toronto by Mr. Thurston who stated that it was killed on the Qu'Appelle River. This may or may not bring the species within our limits but it certainly would at least inscribe it on our probable list, for I am informed by Mr. Ripon of Toronto that this bird commonly breeds on the upper Qu'Appelle. This specimen I have seen, and measured as follows: wing 19 inches; tarsus, 6; toe, 3¼; beak, 3⅞.

Micropalama himantopus. STILT SANDPIPER. — On August 29, at Carberry, I made the first positive capture of this species in the Province. It was in a mixed flock of Sandpipers of several species.

Zenaidura macroura. MOURNING DOVE. — The disappearance of the Passenger Pigeon has been closely followed by the appearance of the Common Dove. In the three years of my residence in the Province early in the eighties, I saw but one Dove; now, however, they abound on the Big Plain wherever there are trees and water. Three or four pairs seem to be semi-domesticated about each barnyard that affords the above requisites, and they appear to be spreading farther each year, and greatly increasing in numbers.

Archibuteo ferrugineus. RED ROUGHLEG. — A fine specimen of this was taken near Winnipeg by Mr. Hine, and is now in the Manitoba Museum. It had previously been listed as probable only.

Falco rusticolus obsoletus. BLACK GYRFALCON. — This species also I had listed as probably Manitoban in winter. Since then two fine specimens have been taken and are now in the Manitoba Museum.

Tyrannus verticalis. ARKANSAS KINGBIRD. — Two specimens of this, an adult and one in first plumage, were taken by Mr. D. Losh Thorpe at the Souris coal fields, August 20, 1891. This is not many miles to the west of the Province and justifies the insertion of the species as probably Man-

[1] Proc. U. S. Nat. Mus., XIII, 1891, pp. 457–643.

itoban. My thanks are due to Mr. Thorpe for the privilege of examining this and other specimens in his collection.

Myiarchus crinitus. CRESTED FLYCATCHER. 'TYRANT FLYCATCHER.' — Three specimens of this, to us, scarce bird, are in the Manitoba Museum; all were taken near Winnipeg. While at Carberry I several times met with it; and it is to be considered much less rare than I formerly supposed.

Leucosticte tephrocotis. GRAY-CROWNED FINCH. 'PINK SNOWBIRD.'— I have in my collection an adult of this species taken near Birtle, Manitoba, in January, 1891, by Mr. George Copeland. Also in the Manitoba Museum are two specimens taken in the Province by Mr. Hine. These give a considerable eastward extension to the range of the species.

Rhynchophanes mccowni. MCCOWN'S LONGSPUR. — A specimen of this bird taken by Mr. Thorpe near Dalesbro, just west of our borders, justifies its inclusion as a probable straggler.

Ammodramus caudacutus nelsoni. SHARP-TAILED SPARROW. — On my arrival at Winnipeg Mr. Hine surprised me by producing a specimen of the above, shot at Winnipeg on May 25, 1892. On June 30, at Carberry, while out in pursuit of Leconte's Sparrow, I heard a curious note, unlike that of the species I was after. On going over the slough to the spot I put up two small, dark-colored Sparrows. I got one with the right, but the left barrel missed fire. The new species was also *caudacutus*, and I several times heard its notes afterwards in this and other similar regions about. On September 1, while out Duck-shooting in a new locality, I came on a large straggling flock of Sparrows in a slough; for the sake of identification I shot one, and again found it *caudacutus*. The same day at a point four miles west, I met with another flock, and again secured a true Sharptail. These two birds, though much injured by the duck shot, are now in my collection. They have been submitted to Mr. F. M. Chapman, who pronounces all to be of the subspecies *nelsoni*.

Stelgidopteryx serripennis. SAW-WINGED SWALLOW. — A specimen of this bird, taken near Winnipeg by Mr. Hine, is in the Manitoba Museum.

Anthus spraguei. MISSOURI SKYLARK.—This bird was very abundant on the Big Plain in 1882, but in 1892 I failed to see or hear a single individual in the country. They appear to have totally disappeared. This is unquestionably owing to the breaking up of the virgin prairie. The progress of agriculture has apparently affected this more than any other species, but has also wrought marked changes in the distribution of several. The Pinnated Grouse, as well as the Sharp-tailed Grouse, the Dove, the Shore Lark, the Meadowlark, and the Vesper Sparrow have all increased remarkably within the last ten years. The same may be said of all the Blackbirds excepting the Cowbird. The Passenger Pigeon, Swainson's Hawk and several of the Ducks have suffered, but the Missouri Skylark alone seems to have found itself quite unable to cope with the surroundings of the new order of things.

Sialia sialis. BLUEBIRD.— It is gratifying to note that this species, instead of very rare, has become quite common in the country along the Assiniboine; and nearly every grove of oak of any extent is found to have a pair making their home in it along with the Purple Martins.

ON THE GENUS *PITTA* VIEILLOT.

BY D. G. ELLIOT.

IN 1816 Vieillot instituted in his 'Analyse d'une nouvelle Ornithologie élémentaire,' p. 42, the genus *Pitta* for those birds designated Brève by Buffon. *Pitta* was defined as follows:

"BRÈVE, *Pitta*. *Corvus*, Linn. Gm. Lath.

Bec robuste, un peu épais à la base, droit, convexe en dessus, comprimé, pointu; mandibule supérieure échancrée vers le bout; l'inférieure entière, égale.—Ailes longues.—Queue courte.

Esp. Brève, Buff."

Beside the character "*Queue courte*," he gives no other which might not equally apply to the species in the other division of the family which are at present included in the genus *Eucichla*. "*Queue courte*" is a relative term, as all the species of Pitta have short tails in comparison to their size, although some have them longer than others, and even all the members of *Eucichla*, the so-called long-tailed species, are not equal in this respect, *E. ellioti* and *E. gurneyi* having rectrices intermediate in length between the very short-tailed species, of which *P. brachyura* (Linn.) may be considered the type, and *E. guaiana* (Müll.), which represents those with long tails, and is the type of its genus.

Vieillot cites the Brèves of Buffon as those birds he intended should be included in his genus. These are four in number, *three* only of which, not *all* as stated by Sclater (Ibis, 1877, p. 260), belong to the short-tailed group, and one to the long-tailed. They are the *Merle des Philippines*, pl. 89 (*P. sordida* Müll.), *Merle des Moluques*, pl. 257 (*P. moluccensis* Müll.), *Merle vert des Moluques*, pl. 258 (*P. coronata* Müll.), and *Merle de la Guiane*, pl. 355 (*P. guaiana* Müll.).

Pitta Vieillot is therefore a composite genus, and an author when dividing the family into different genera has a perfect right to choose as the type for his division *Pitta* any of the species among those included by Vieillot in his genus, when he had made them all equal, and recognized no generic differences among them, and placed both short- and long-tailed species in one genus.

In my 'Monograph,' published in 1863, I restricted the term *Pitta* to those birds with the long, pointed tails, and adopted for the short- nearly square-tailed species the term *Brachyurus*, Thunberg (Vet. Akad. Handl. 1821, p. 370). This, however, has been twice previously employed in zoölogy, first by Latreille in 1802 for a genus of crustacea, and again in 1814 by Fischer for one of mammals, and cannot, therefore, according to the principles adopted by naturalists at the present day, be again employed in ornithology. In 1859 Reichenbach in his 'Systema Avium,' pl. lii, separated the fourth species in Vieillot's genus, *le Merle de la Guiane*, from the rest, and made it the type of a new genus *Eucichla*, thus leaving the short-tailed birds to represent Vieillot's genus *Pitta*, of which the type, if we take the first species mentioned by Buffon, would be that on plate 89, the *Merle des Philippines* (*P. sordida* Müll.), and not *P. brachyura* as given by Sclater (Cat. Bds. Brit. Mus., XIV, 1888, p. 413), which is not mentioned at all by Buffon in his work, the *Merle de Bengale*, as figured on Plate 258, being a Moluccan and not an Indian species.

If, therefore, the Pittidæ are to be divided into three genera, we should have *Anthocincla* with *A. phayrei* as its type, *Pitta*, with *P. sordida* for its type, comprising all the birds with very short, slightly rounded rectrices, and *Eucichla* with *P. guaiana* as type, including the species with rather elongated, pointed tails. Not sufficient is known at present of the anatomy of *Coracopitta* to warrant its reception into Pittidæ, the probability being that it belongs to a different family.

THE NESTING OF THE BLACK DUCK ON PLUM ISLAND.

BY CHARLES SLOVER ALLEN.

(*Plates I and II.*)

ALTHOUGH having an area of but a few hundred acres, Plum Island is so varied in its topography and so rich in bird life that it proves a most interesting little world of its own. The narrow eastern portion consists of high, rocky, upland pastures, without a tree or bush. In the miniature valleys each tiny pond has its pair of noisy Killdeers whose nearest neighbors are the Plovers on the hillside and the Nighthawks breeding on the rocky ledges. The whole north shore forms a long, irregular sand cliff of considerable height, thickly studded with huge glacial boulders; some stranded on the beach were thirty feet high, while others showed great rocky masses far out in the water. Prior to 1885, when 'Old Jerome' still owned the island and his law of absolute protection was in full force, there were but few of these boulders that were not crowned with Fish Hawks' nests, to which the Kingfishers paid their visits, like the minstrels of old to the castles of the Vikings. The Swallows had located their colonies in the lesser sand banks of the southern shore that gradually became a broad beach with low scattered sand hills to the westward where the island broadened out into a great rolling sandy plain. Terns were breeding in the drift and sedge close to the beach at South Point. As everywhere else upon this island, Fish Hawks were nesting here by the hundred, on the few isolated and dwarfed trees, and on the ground wherever there was a little sand hill or by the side of each convenient stump, stake, or piece of stranded timber. Sandpipers, Meadowlarks, Sparrows and the like were fearlessly nesting within a few yards of them. Even in the densely populated strip of fairly heavy timber, some eight or ten acres in extent, the Fish Hawks were on the very best of terms with all their smaller neighbors, save only the Crows that represented the criminal element of this community, and a large rookery of Night Herons that persisted in occupying that swampy corner of the woods that merged into and were in part surrounded by the great fresh water marsh in the centre of the island. In this marsh it was that I finally found my

Black Ducks (*Anas obscura*) breeding among the numerous small islands and open places of clear water.

During my first visits to Plum Island in 1879 and 1881 Mr. Jerome and the lighthouse keeper made frequent mention of the fact that a pair of Wood Ducks and several pairs of Black Ducks had been frequently seen, both in this swamp and in a salt water marsh nearer the beach during the spring and summer for several years. In spite of diligent search I merely caught a hurried glimpse of them once or twice and utterly failed to locate their proper address. May 25, 1885, while wading through this swamp in search of Rails, I crossed a narrow bushy little island. I was startled by a peeping sound and a scramble under my feet and a glimpse of a moving line of brown and yellow balls, a dozen or more in number, that instantly vanished. I spotted the hiding place of the last unfortunate duckling and finally captured it after an exciting chase. I caught a glimpse of the parent bird just vanishing behind an island of grass near by, but in spite of over an hour's dilligent and minute search where every leaf was turned, I utterly failed in seeing another of the young and in flushing the old bird, though the young ones were calling all around me. Nor could I find that particular nest during my stay, although I found two others, with eggs just hatching, on the 27th. The first I discovered by fairly stepping upon the old bird while on the nest, which was so boldly located that I never thought of searching anywhere near it. The marsh lay directly in line and midway between Jerome's house and the tilled land, orchards, and sheep barn a mile away, on which a Fish Hawk had its nest. As it was a long way around, a causeway had been built through the centre of this swamp, as a short cut, some thirty years before. From some historic event it was called Love Lane. After the trees had grown up along its sides, each had its bulky Fish Hawk's nest, with numerous families of Grackles as subtenants and boarders. At the further end of this causeway, where all was open and the pasture began, there was a small isolated clump of myrtle five feet in diameter, extending from the wheel track to the water's edge. Twice a day the farm hands, with oxen and wagons, stumbled through one edge of this patch and the wheels broke down the twigs, while the Black Duck was on the nest but three or four feet away. I had brushed through it many times when on my way to search the hidden recesses of the swamp.

Early in the morning, May 27, I saw a Rail dodge into this little clump from the water's edge, and in trying to find it I stepped into the Duck's nest, flushing the bird and partly breaking one of the eleven eggs it contained. They were uncovered, though embedded in down, and several were already pipped. The old bird soon came back to the marsh and suddenly appeared in the clear water from behind some bushes and tried to entice me away. After cutting away some of the branches concealing the nest I started back along the causeway so as to bring my camera from the lighthouse. I had gone but a hundred yards or so when another Black Duck appeared swimming in a clear patch of water far out in the centre of the marsh. It vanished behind a grassy ridge and then took wing. Although I had no boots I waded out and examined a tuft of bushes and grass far back in the direction from which the Duck was swimming. This bird had undoubtedly been startled by the outcries of the first, and had quietly left her nest, only showing herself when at a distance. In this nest, fairly covered with down, were four young already hatched and not dry as yet, and six eggs rapidly hatching in the hot sun. When I returned to this nest with the camera an hour later, every egg had hatched and nothing but the empty shells remained. I could find nowhere the slightest trace of the birds, young or old.

I was very careful in approaching the first nest and stood watching the actions of the bird while she was preparing to leave the nest. For nearly a minute she seemed busy with the eggs and the down under her, as though partially covering them up. Then she silently slipped into the water, diving just behind a tuft of grass. The water was so shallow and clear that I could plainly watch her as she swam under water close along the edge of the causeway, instead of going out into the wild canals of the marsh. She came to the surface with a wild outcry some distance beyond me and close to the path. I dropped everything and followed, while she kept fluttering in apparently the most helpless manner, and even struggling as though drowning, but a few feet away. She seemed to realize that I would not follow her out into the deep water of the marsh, so she still kept along the edge of the causeway, gradually increasing her distance from me and recovering from her crippled state, until she finally swam behind a bushy island and from there took flight off toward the ocean.

I found the eggs pretty well covered when I went to the nest. In order to let the bird come back I spent over an hour taking notes in the woods the other side of the marsh and in searching for the Wood Duck's nest. On returning I purposely came upon the Black Duck suddenly, in order again to flush her as I had done when finding the nest. The eggs were uncovered to a great extent, one bird was entirely out of the shell and drying, so that the fluffs of down were beginning to break their casings and clothe the little one. Several others were nearly out of their shells, and most of the eggs were already cracked in a circle near one end. While I was photographing the nest and young, the old bird returned, flying high, but after circling lower, alighted in the water a hundred feet away with a sudden loud outcry. When she failed to entice me away, she approached much nearer, and finally crawled out upon the causeway within twenty-five feet, and dragged herself back and forth through the rank grass and down the narrow path as though both wings, and legs as well, were broken. Her mate I never saw, but during the hour that I sat watching the rapid hatching out of the eggs in the hot sun this poor, distressed bird was untiring in her efforts to lure me away, and often approached so near that I could have caught her by a sudden rush before she could have cleared herself from the tall grass.

The plate (Plate I) is a poor one, but it shows the nest, with eggs embedded in the down, and if one looks closely the partly hatched young can be seen.

The exact method adopted by the bird in freeing itself from the shell proved interesting. I will describe the procedure as it occurred in an egg that I took from the nest before the first crack had appeared. While examining it there was evidence of a strong muscular effort on the part of the bird inside, and a small disk of shell was chipped out and raised above the surface at about one third of the distance from the end; then came a second or two of rest, followed by what felt like a scramble inside; then a second of quiet and the horny little knob on the end of the bill was driven through the shell one eighth of an inch to the right of the first puncture. This routine was repeated over and over until some twenty-five or thirty punctures had been made, completely encircling one end of the egg, each being about one eighth of an inch to the right of the preceding one. The efforts seemed

stronger as it started around the same circle again, and the cap of the shell would be lifted a little each time, showing that it was attached by little more than the tough membrane beneath the shell. Before the second circle was half completed, it tore the cap loose so that it could be raised like the lid of a box, with one inch of the membrane acting as a hinge. In freeing itself from the shell the neck was stretched out and the little one breathed for the first time. Then the shoulders were pushed out into my hand, free of the shell, one wing after the other being freed, while the bird lay gasping and gaping widely with its bill. In half a minute more it was entirely free from the shell and lay weak and helpless in the sun, its wet, slimy skin absolutely bare, save here and there small dark hairs widely separated. As it began to dry it gained in strength and made feeble efforts to stand, resting on the whole length of the tarsus. In drying the hairs no longer adhered to the skin. Soon each little pointed hair began to crack and split open, and from this protective casing there came a light fluff of down nearly as large as the end of one's finger. It was more surprising than the bursting of a grain of pop corn, though far less rapid. It took comparatively few of these yellow and brown fluffs to convert the naked weakling into a beautiful downy duckling that stood up boldly in my hand and began to notice what was going on about it, especially the calls of the parent bird close by. Each went through the same procedure, invariably breaking the shell from left to right. They showed no fear and would cuddle under one's hand very confidingly.

When I visited the nest late in the afternoon, after they had had a few hours of instruction from the careful mother, they deserted the nest in wild alarm the moment I appeared in sight, and instantly concealed themselves so as to baffle all search, though all were in plain sight an instant before. This nest was close to that of a Fish Hawk of which it showed no fear whatever, though I saw one Black Duck that was flying over the marsh suddenly double up and apparently fall over and over, striking the water as if it had been shot and making an instant dive, as a Red-tailed Hawk came sailing over the treetops.

During the three days I remained on the island I never succeeded in seeing one of these thirty odd ducklings though I more than once heard the old bird calling out warnings to the brood near her.

Three of the eggs that were uncracked were placed in the cool water to delay hatching and carried back to the lighthouse after I had finished watching the other eggs hatch. One egg hatched on the way and I found the bird dead in my pocket, a rather disgusting object, wet and naked, while the others were alive and nearly free from the shells. In the sun they soon became covered with down like the others, but the dead one refused to blossom out under the same conditions. Drying it with alcohol and rubbing with a soft brush caused these hair-like pointed casings to split and come away in segments, giving as perfect plumage as any. My two pets refused to eat and when I tried to feed them with milk gruel and egg from a glass dropper they fought against the procedure with all their puny might so piteously that I was forced to give it up and carry them back to the nest where I left them with the old bird near at hand. Next day I found them there, one dead and the other dying. I was forced to be content with them as specimens. Since then I have carefully watched the hatching of many different kinds of birds, both domestic and wild, and have found their different methods intensely interesting. In all cases nature provides practically the same hair-like cylinders as a water-proof protection to prevent the down from getting wet and matted by the slimy liquids within the egg. In some the process of drying, with the bursting of these sheaths and blossoming out of the bulky down tufts, is very rapid indeed, while others require many hours. Unless thus protected the down of all birds would become a very sorry matted mass before they left the shell, and infinitely more uncomfortable to the bird as this albuminous mass dried and hardened upon the delicate skin. It could never become the same light, fluffy, protective covering to the young bird.

It is an interesting study to note just where and how each different bird cuts through the shell in gaining its liberty, whether around the centre of the egg, or near the base or point, and whether by successive punctures toward the right or left, or more or less irregularly. Each seems to have, within certain limits, the head and armed beak approximately in the same relative position as others of its kind, and it escapes in much the same way. A Heron's egg is broken at a very different place and in a very different manner from that of a Duck, a Quail, or a Snipe. The shape of the egg has likewise much to do with it. I should like

to hear next fall from such as are willing to study the shells left in and about deserted nests, and to watch the process wherever they have the opportunity; also the time required for the down to burst forth from the enclosing sheath or envelope. I have known this to cause a difference of opinion as to whether the young of a certain bird were dark slate-color or pure white, when it was only a matter of the difference of some hours or days in their age. The skin and cylindrical hairs were dark in this case, but the down was white. Each was looking at the other side of the traditional shield.

[Plate II represents the Black Duck Group in the American Museum of Natural History, New York City. The nest, young birds, and accompanying accessories were collected by Mr. Jenness Richardson, on Gardener's Island, New York, May 9, 1889, by whom also the group was mounted at the Museum. This group is No. 46 of the Museum series of bird groups prepared by Mr. Richardson. — ED.]

FIFTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF NORTH AMERICAN BIRDS.

BY ORDER of the Council of the American Ornithologists' Union the Committee on Classification and Nomenclature of North American Birds has prepared the following report on the species, subspecies, and changes of nomenclature proposed during the year ending November, 1892, forming the Fifth Supplement to the American Ornithologists' Union Check-List. The Committee met in Washington, Nov. 18–19, 1892, with the following members present: Allen, Chapman, Coues, Merriam, and Ridgway.

The numbers at the left of the scientific names facilitate collation with the Check-List. The interpolated species and subspecies are numbered in accordance with the provision made

therefor in the Code of Nomenclature. (See page 14, last paragraph.)

Committee { ELLIOTT COUES, *Chairman.*
J. A. ALLEN.
WILLIAM BREWSTER.
FRANK M. CHAPMAN.
CHARLES B. CORY.
D. G. ELLIOT.
H. W. HENSHAW.
C. HART MERRIAM.
ROBERT RIDGWAY. }

I. ADDITIONS.

310 *c*. **Meleagris gallopavo ellioti** SENNETT.

Rio Grande Turkey.

Meleagris gallopavo ellioti SENNETT, Auk, IX, April, 1892, 167, pl. iii.

[B 458, *part*, C 379, *part*, R 470, *part*, C 553, *part*.]

HAB. Lowlands of southern Texas and eastern Mexico.

360 *a*. **Falco sparverius deserticolus** MEARNS.

Desert Sparrow Hawk.

Falco sparverius deserticolus MEARNS, Auk, IX, July, 1892, 263.

[B 13, *part*, C 346, *part*, R 420, *part*, C 508, *part*.]

HAB. Southwestern United States, north to northern California and western Montana, south to Mazatlan in northwestern Mexico.

360 *b*. **Falco sparverius peninsularis** MEARNS.

St. Lucas Sparrow Hawk.

Falco sparverius peninsularis MEARNS, Auk, IX, July, 1892, 267.

[B 13, *part*, C 346, *part*, R 420, *part*, C 508, *part*.]

HAB. Lower California.

454 *a*. **Myiarchus cinerascens nuttingi** (RIDGW.).

Nutting's Flycatcher.

[B 131, *part*, C 248, *part*, R 313, *part*, C 375, *part*.]

Myiarchus nuttingi RIDGW., Proc. U. S. Nat. Mus. V, 1882, 394.

Myiarchus cinerascens nuttingi ALLEN, Bull. Am. Mus. Nat. Hist. IV, Dec. 1892, 346.

HAB. Southern Arizona, southward through western Mexico to Costa Rica. (*Cf.* FISHER, Auk, IX, Oct. 1892, 394.)

Added to the Hypothetical List.

11.1. **Numenius arquatus** (LINN.).

European Curlew.

Scolopax arquata LINN. Syst. Nat. I, 1758, 145.

Numenius arquatus LATH. Gen. Syn. Suppl. I, 1787, 291.

[B—, C—, R—, C—.]

Recorded as occurring on Long Island, N. Y. (*Cf.* MARSHALL and DUTCHER, Auk, IX, Oct. 1892, 390–392.) While there is no question as to the proper identification of the specimen, the evidence that it was taken on Long Island is not considered as entirely satisfactory.

II. CHANGES OF NOMENCLATURE.

It having been decided to recognize *Ardetta* GRAY as a full genus, instead of as a subgenus of *Botaurus*, Nos. 191 and 191.1 will stand as follows:—

191. **Ardetta exilis** (GMEL.).

191.1. **Ardetta neoxena** CORY.

216 *a*. **Porzana jamaicensis coturniculus** BAIRD. This becomes

216.1. **Porzana coturniculus** (BAIRD). (*Cf.* RIDGWAY, Proc. U. S. Nat. Mus. XIII, 1890, 309.)

391. **Ceryle cabanisi** (TSCHUDI). This becomes **Ceryle americana septentrionalis** SHARPE. (*Cf.* SHARPE, Cat. Birds Brit. Mus. XVII, 1892, 134.)

425. **Micropus melanoleucus** (BAIRD). This becomes

Aëronautes melanoleucus (BAIRD).

(*Cf.* HARTERT, Cat. Birds Brit. Mus. XVI, 1892, 459. *Aëronautes* HARTERT, gen. nov.; type, *Cypselus melanoleucus* BAIRD.)

It was decided to recognize *Calypte* GOULD, *Selasphorus* SWAINSON, *Stellula* GOULD, and *Calothorax* GRAY, as full genera instead of as merely subgenera of *Trochilus* LINN. This decision disposes of the question of *Trochilus floresii* GOULD (1861, *nec Trochilus floresii* BOURCIER, 1846) *vs. Trochilus rubromitratus* RIDGWAY. (*Cf.* RIDGWAY, Auk, VIII, Jan. 1891, 114.) The species of Hummingbirds numbered 430 to 437, inclusive, will hence stand as follows:—

430. **Calypte costæ** (BOURC.).
431. **Calypte anna** (LESS.).
431.1. **Selasphorus floresii** (GOULD).
432. **Selasphorus platycercus** (SWAINS.).
433. **Selasphorus rufus** (GMEL.).
434. **Selasphorus alleni** HENSH.
436.[1] **Stellula calliope** (GOULD).
437. **Calothorax lucifer** (SWAINS.).

III. FORMS CONSIDERED AS NOT ENTITLED TO RECOGNITION.

Vireo vicinior californicus STEPHENS, Auk, VII, April 1890, 159. Not admitted on account of the insufficiency of characters alleged.

IV. PROPOSED CHANGES OF NOMENCLATURE REJECTED.

Columbigallina purpurea MAYNARD (Am. Exch. and Mart., III, 1887, 33) *vs. Columbigallina passerina* (LINN.). (*Cf.* BERLEPSCH, Journ. f. Orn. 1892, 97.) Rejected on the ground that the hypothetical case upon which the name *purpurea* was tentatively proposed proves to be without foundation.

[1] No. 435, *Trochilus heloisa*, has been eliminated. (*Cf.* Auk, VIII, Jan. 1891, 88.)

Geococcyx mexicanus (GMEL.) *vs. Geococcyx californianus* (LESS.). (*Cf.* SHELLY, Cat. Birds Brit. Mus. XIX, 1891, 419.) Rejected on the ground that if *Phasianus mexicanus* GMEL. be identifiable at all it must relate to *Geococcyx affinis* HARTL. rather than to the more northern *G. californianus*.

V. ACTION DEFERRED FROM LACK OF MATERIAL.

Final action on the following was deferred, owing to the absence of necessary material.

Megascops asio aikeni BREWST., Auk, VIII, April, 1891, 139.

Megascops asio macfarlanei BREWST., Auk, VIII, April, 1891, 140.

Megascops asio saturatus BREWST., Auk, VIII, April, 1891, 141.

The availability of *Conuropsis* SALVAD. vs. *Conurus* KUHL (Cat. Birds Brit. Mus., XX, 1891, 203) was referred to a subcommittee to report thereon to the Committee of 1893.

In reference to the generic value of *Anstrostomus* (*Cf.* HARTERT, Ibis, April, 1892, 285), it was voted, in view of the insufficiency of the material available for examination, that for the present no change be made in respect to its status in the Check-List.

ERRATUM.— In the Fourth Supplement to the Check-List number 567*e* (Auk, IX, Jan. 1892, 107) should be 567*d*.

TENTH CONGRESS OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE TENTH CONGRESS of the American Ornithologists' Union was held in the Lecture Hall of the United States National Museum, Washington, D. C., Nov. 15–17, 1892. There were present during the session twenty Active Members and twenty-four Associate Members. The report of the Secretary gave the

status of membership as follows: Active Members, 45; Honorary Members, 22; Corresponding Members, 74; Associate Members, 416. Total, 557, showing an increase of 64 for the year. During the year the Union lost by death Dr. John Amory Jeffries, an original Active Member, who died in Boston, Mass., March 26, 1892; Dr. Hermann Burmeister, an Honorary Member, who died in Buenos Ayres, May 1, 1892, in his 86th year; and Capt. Thomas Wright Blakiston, an original Corresponding Member, who died in San Diego, California, Oct. 15, 1891, aged 59 years. The report of the Treasurer showed the finances of the Union to be in excellent condition.

The following officers were elected for the ensuing year, Mr. D. G. Elliot declining to be a candidate for reëlection as President: Elliott Coues, President; William Brewster and Henry W. Henshaw, Vice-Presidents; John H. Sage, Secretary; William Dutcher, Treasurer. Three Active Members were elected, as follows: Frederic A. Lucas, Witmer Stone and Leverett M. Loomis. Sixty-seven Members were added to the Associate list.

The usual reports of Committees were received, and the proposed amendment to Article V, Section 4, of the By-Laws was adopted. In order to gain more time for the reading of papers, it was voted that in future a session shall be held during the evening of the day on which the stated meeting of the Council is held, for the election of officers and members and the transaction of the usual routine business of the Congress, which heretofore has occupied the greater part of the first day's session. As the stated meeting of the Council is held on the day preceding the meeting of the Union, this change adds one day to the time available for the reading of papers, practically without extending the length of the Congress.

A resolution was also adopted that on the decease of any Active Member of the Union, the President shall appoint a committee of one to prepare a suitable memorial of the life and work of the deceased member, to be read at the first stated meeting of the Union, and to be published in 'The Auk' as an expression of the sense of the Union.

The following papers were presented:

1. **Birds of Lewis and Clarke in 1892.** Elliott Coues.

2. **Summer Birds of Indiana and Clearfield Counties, Pa.** W. E. Clyde Todd.

3. The Geographical Distribution of the Genus *Megascops* in North America. E. M. Hasbrouck.

4. Summer Birds of Prince Edward Island. Jonathan Dwight, Jr.

5. A Partial List of the Birds of White Head Island, Maine. Arthur H. Norton.

6. The Origin and Geographical Distribution of North American Birds. J. A. Allen.

7. The Life Areas of North America, considered especially in Relation to their Classification and Nomenclature. J. A. Allen.

8. The Flycatchers of the *Myiarchus mexicanus* and *M. cinerascens* Groups. J. A. Allen.

9. Notes on Birds observed in Cuba. Frank M. Chapman.

10. Remarks on the Origin of West Indian Bird Life. Frank M. Chapman.

11. A Review of the Faunal Literature of North American Ornithology. Frank M. Chapman.

12. Some Eccentricities in Geographical Distribution. D. G. Elliot.

13. Observations on the Knot (*Tringa canutus*). George H. Mackay.

14. Migration of *Charadrius dominicus* in Massachusetts in 1892. George H. Mackay.

15. The Autumnal Plumage of the Hooded Warbler. Wm. Palmer.

16. Food Habits of the Common Crow. Walter B. Barrows.

17. A Preliminary Investigation of the Food Habits of *Ampelis cedrorum*. F. E. L. Beal.

18. Notes on *Helminthophila chrysoptera*, *pinus*, *leucobronchialis* and *lawrencei* in Connecticut. Jno. H. Sage.

19. Additions to the List of Manitoban Birds. Ernest E. Thompson.

20. Feeding and Breeding Habits of the Manitoban Icteridæ. Ernest E. Thompson.

21. Feeding Habits of the Pinewood Woodpeckers. Ernest E. Thompson.

22. The Distribution of the Genus *Harporhynchus*. T. S. Palmer.

23. Exhibition of specimens of the Imperial Woodpecker. T. S. Palmer.

Resolutions were adopted tendering the thanks of the Union to the Regents of the Smithsonian Institution for the use of the Lecture Hall of the National Museum as a place of meeting for the Tenth Congress of the Union, and for other courtesies, and to the Washington members for their cordial welcome and generous hospitality to the visiting members.

It was voted to hold the next Congress of the Union in Cambridge, Mass., on the third Tuesday of November, 1893.

RECENT LITERATURE.

The British Museum Catalogue of the Picariæ.—The "Order Picariæ," as treated in the 'Catalogue of the Birds in the British Museum' (Vols. XVI–XIX), consists of eight 'suborders,' as follows: (1) Upupæ, (2) Trochili, (3) Coraciæ, (4) Halcyones, (5) Bucerotes, (6) Trogones, (7) Scansores, (8) Coccyges. This arrangement is adopted tentatively, as under the head of 'Order IV, Picariæ' (p. 1) we find the following: "The adoption of an 'order of Picarians' is at best a provisional measure, and if this 'order' be thought to be inadmissible, then the divisions proposed by Mr. Seebohm would have to rank as separate orders, and might be arranged in a sequence more in conformity with what are, at present, considered their natural affinities."

The volumes treating of the Scansores and Coccyges appeared in 1890 and 1891, the Woodpeckers (Vol. XVIII) being by Mr. Hargitt (*cf.* Auk, VIII, Jan., 1891, p. 92), and the remaining families of the Scansores and the Coccyges (Vol. XIX) by Mr. Sclater and Mr. Shelley, respectively (*cf.* Auk, IX, Apr., 1892, p. 184). Volumes XVI and XVII have recently appeared, the former[1] embracing the Upupæ and Trochili, by Mr. Osbert Salvin, and four families of the Coraciæ, by Mr. Ernst Hartert; the latter[2] (Vol. XVII) contains the remaining families of the Coraciæ, the Halcyones, Bucerotes, and Trogones, by Mr. Sharpe and Mr. Grant.

The 'suborder Upupæ,' although comprising only about 15 species, is divisible into two families,—the Hoopoes (Upupidæ), with one genus and 5 species, and the Wood-Hoopoes (Irrisoridæ), with three genera and 10 species.

The 'suborder Trochili' includes 127 genera, as defined by Mr. Salvin, and 482 species, represented in the collection of the British Museum by 8253 specimens, of which 161 are type specimens of valid species. This large number of specimens includes "the two largest collections of Humming Birds that have been made hitherto, viz. those of the late Mr. J. Gould and of Messrs. Godman and Salvin." The group is arbitrarily

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[1] Catalogue | of the | Picariæ | in the | Collection | of the | British Museum. | — | Upupæ and Trochili, | by | Osbert Salvin. | Coraciæ, | of the Families | Cypselidæ, Caprimulgidæ, Podargidae, and | Steatornithidæ, | by | Ernst Hartert. | London: Printed by order of the Trustees. Sold by | Longmans & Co., 37 Soho Square; | . . . . [=etc., 4 lines] 1892.—8vo. pp. xvi + , 704, pll. xvi.=Catalogue of the Birds in the British Museum, Vol. XVI.

[2] Catalogue | of the | Picariæ | in the | Collection | of the | British Museum. | — | Coraciæ (contin.) and Halcyones, | with the Families | Leptosomidæ, Coraciidæ, Meropidæ, | Alcedinidæ, Momotidæ, Todidæ, and Coliidæ, | by | R. Bowdler Sharpe. | Bucerotes and Trogones, | by | W. R. Ogilvie Grant. | London: Printed by order of the Trustees. | Sold by Longmans & Co., 39 Paternoster Row; | . . . . [=etc., 4 lines] 1892.—8vo, pp. xi, 522, pll. xvii. = Catalogue of the Birds in the British Museum, Vol. XVII.

divided into three 'sections,' according to the presence or absence, or partial absence, of serrations near the tip of the bill, viz. (1) 'Trochili serrirostres,' (2) 'Trochili intermedii,' and (3) 'Trochili lævirostres.' The difficulty of finding trenchant characters for the subdivision of the Trochili into natural supergeneric groups is well known, but the one here chosen seems the most unfortunate and artificial that could have been selected. Besides being one of degree merely of a character rarely strongly marked, the major divisions based on it separate widely genera which in general characters are often closely related. This results in extensive transpositions of genera from the order in which they have heretofore usually been placed. As already stated, the number of species recognized as valid is 482; as, however, a number of species are mentioned in foot-notes as unknown to the author, and thus not included in the above number, the total of species and subspecies may be estimated in round numbers as not far from 500. This is a considerable increase over the number (426) recognized by Mr. Elliot in 1878, since which time, however, many new species have been described. The method of treatment is of course similar to that of the preceding volumes of the 'Catalogue.' We note one new genus, *Neolesbia* (p. 145, type *Cyanolesbia nehrkorni* Berl.), but the eight apparently new species, as they stand in the body of the work, were really described in 1891, in the 'Annals and Magazine of Natural History' (Vol. VII. pp. 375–379), as duly noted in the 'Addenda' to the present volume.

The Trochili occupy pp. 27–433 of Vol. XVI, and are followed by the first four families of the 'Coraciæ,' namely, Cypselidæ, Caprimulgidæ, Steatornithidæ, and Podargidæ, by Mr. Hartert. The Cypselidæ number 78 species, and are represented in the British Museum by 1500 specimens; the Caprimulgidæ number 86 species, represented by 1800 specimens; the Podargidæ number 24 species, represented by 271 specimens; and the Steatornithidæ by 1 species and 14 specimens. Respecting the relationships of some of these groups, Mr. Hartert observes: "The Cypselidæ have been placed, along with the Trochilidæ and Caprimulgidæ, in the order 'Macrochires' or 'Strisores.' This arrangement is based on good grounds, and has much to commend it. Some recent anatomists deny the near relationship of these families. If raised to the rank of orders, Cypseli, Trochili, and Caprimulgi should be placed near together" (p. 435).

Mr. Hartert prefers to retain the name Cypselidæ for the Swifts, in place of Micropodidæ, on the ground that the law of priority should apply to families as well as to genera and species. With this we agree, but we differ from Mr. Hartert in his interpretation of its application to families. When *Cypselus* is shown to be a synonym of *Micropus*, and *Micropus* becomes the name of the group formerly currently known as *Cypselus*, from which the name of the family was derived, we believe the name of the family should be changed to conform to the correct name of the genus from which the name of the family is taken. In cases like the present it might seem better to retain well-known family names, although based on

generic names which have lapsed into synonymy. But suppose it had turned out that *Cypselus* was not merely a synonym of an earlier name for the same genus, but was preoccupied in some other department of zoölogy, or for a genus in some other family of birds. The propriety and even desirability of changing the family name derived from *Cypselus* would then be obvious. In fact, such change would be in accordance with current usage. Hence Canon V of the A. O. U. Code of Nomenclature, which rules that "When a generic name becomes a synonym, a current family or subfamily name based upon such generic name becomes untenable." We believe that a rule in nomenclature, if it is to have any value, must be a strict rule, and hence not open to exceptions, to be determined by the individual preferences of authors.

Mr. Hartert considers, and apparently with good reason, that our North American *Micropus melanoleucus* is not congeneric with the Old World species of *Micropus* (type, *Hirundo apus* L.), and has accordingly instituted (p. 459) for it the new genus *Aëronautes*. He also proposes the new genus *Claudia* (p. 469) for the South American *Cypselus squamata* Cass.

Mr. Hartert sees no reason for recognizing the genus *Antrostomus* Nuttall as distinct from *Caprimulgus* (*cf.* Ibis, April, 1892, p. 285). He therefore places all the species, from both North and South America, for a long time generally referred to *Antrostomus*, in the genus *Caprimulgus*, which, as thus defined, includes about 50 species and subspecies, and has a nearly cosmopolitan distribution.

The *Antrostomus macromystax* of Baird and Ridgway (*cf.* Ridgw., Man. N. Am. Bds., p. 298), is described as a new species, under the name *Caprimulgus salvini* (Ibis, 1892, p. 287), it being not the *Caprimulgus macromystax* Wagler, which Mr. Hartert makes identical with Brewster's *Antrostomus vociferus arizonæ*. Thus *C. macromystax* Wagler becomes *C. vociferus macromystax* (Wagl.) Hartert.

Phalænoptilus nuttalli nitidus Brewst. and *P. n. californicus* Ridgw. are not considered as separable, even as subspecies, from *P. nuttalli*. We are of opinion, however, that this conclusion is open to revision.

It is interesting to note that a specimen (♂ ad.) of *Otophanes macleodi* Brewst. is reported from the Salvin-Godman Collection, collected at Zapotlan, Jalisco, Mexico, by Mr. W. Lloyd, making the second specimen of this peculiar form thus far known to science.

The North American species of *Chordeiles* stand as in the A. O. U. Check-List, except that *C. texensis* is made a subspecies of *C. acutipennis* —the status formerly accorded it by American writers.

In Volume XVII, Mr. Sharpe treats the families Leptosomatidæ, Coraciidæ (Rollers), Meropodidæ (Bee-eaters), Alcedinidæ (Kingfishers), Momotidæ (Mot-mots), Todidæ (Todies), and Coliidæ (Colies), and Mr. Grant the Bucerotes (Hornbills) and Trogones (Trogons). These nine families include 397 species (exclusive of subspecies), represented in the collection of the British Museum by 7904 specimens. The Kingfishers number 183 species (besides 30 subspecies), the Hornbills 68, the Trogons 47, the Bee-eaters 36, the Rollers 25, leaving 37 species only to

the remaining three families. Of the 397 species treated in the volume "only 16 species are wanting to the collection of the Museum, and more than one fourth of them are represented by the types." Of the 23 species and subspecies described as new, or which are newly named, 18 are Kingfishers. Our North American *Ceryle cabanisi* is described as a new subspecies, under the name *Ceryle americana*, subspecies β. *septentrionalis*, trinomials, pure and simple, not being admitted into the 'Catalogue of the Birds in the British Museum.' True *cabanisi* is restricted to "Peru." The tropical American *Ceryle superciliosa* is separated into three subspecies, — the true *superciliosa* of South America, *stictoptera* Ridgw. from Mexico and Central America, and *æquatorialis* (subsp. nov.) from Ecuador. Throughout Mr. Sharpe's portions of the work not only have many new forms been described, but many old ones have been reduced to subspecies. Mr. Grant does not appear to recognize subspecies; even where forms are shown to intergrade, as in the *Trogon caligatus* group, they are either kept separate, or lumped as 'races,' distinguished by the letters A, B, etc., as under *Trogon atricollis*, where we have "Race A (*Trogon atricollis*)" and Race B (*Trogon tenellus*)."

These useful volumes, with those previously published, bring this great work through the Raptorial, Passerine, 'Scansorial' and Psittacine series, leaving for future volumes the Pigeons and Grouse, the Tinamous, and the Wading and Swimming Birds, which will probably require many additional volumes to the twenty already published.—J. A. A.

Cory's 'Catalogue of West Indian Birds.' — Mr. Cory's 'Catalogue'[1] is intended to be used in connection with his 'Birds of the West Indies,' the 'Appendix' including a number of species not in that work, as well as many changes in nomenclature. The 'Catalogue' consists essentially of five parts: (1) a tabular list of the genera and species peculiar to the West Indies (pp. 9–20); (2) a bibliography of West Indian ornithology, arranged (*a*) geographically by islands or groups of islands (pp. 21–60), and (*b*) chronologically (pp. 61–79); (3) the 'Catalogue' proper (pp. 81–125); (4) lists of the species and subspecies peculiar to the different islands (pp. 126–134); (5) 'Appendix' (pp. 135–157), consisting of annotations to the 'Catalogue' proper.

The main 'Catalogue' is briefly annotated with reference to the distribution of the species, but instead of giving the names of the islands in full only the group of islands is mentioned, the separate islands where the species occur being denoted by numerals, a key to which is given in the preface and at p. 80. While this saves space and possibly saved trouble to the author, it entails upon the reader the labor of constant reference to

[1] Catalogue | of | West Indian Birds. | Containing a list of all species known to occur in the Bahama Islands, the | Greater Antilles, the Caymans, and the Lesser Antilles, excepting | the Islands of Tobago and Trinidad, | by | Charles B. Cory,— .... [=8 lines of titles, etc.] | — | Published by the Author. | Boston, U. S. A. | 1892.— 4to, pp. 163 and map.

some other part of the book for an explanation of often a long series of numerals — a case of mistaken and vexatious economy. The Appendix contains much interesting matter in the way of geographical and technical notes. His *Zenaida richardsoni* (Auk, IV, 1887, p. 4) he now refers to *Z. zenaida* (p. 138). He adopts the name *Zenaida castanea* Wagl. for what has previously passed currently as *Z. martinicana*, on the ground of the latter name being untenable.

Mr. Cory recognizes four species of Sparrow Hawks from the West Indies, namely *Falco sparverius*, from the Bahamas, etc.; *F. dominicensis*, from San Domingo and Haiti, probably straggling occasionally to eastern Cuba; *F. sparverioides*, from Cuba, where it is represented by a light and dark phase; and *F. caribbæarum*, from Porto Rica and the Lesser Antilles. He thus differs from Mr. Ridgway's conclusion (Auk. 1891, p. 113) that *sparverioides* is a synonym of *dominicensis*.

The Burrowing Owls from the Bahamas he considers (p. 140) should all be referred to *Speotyto cunicularia floridana*, including his own *S. c. bahamensis*. *Lampornis ellioti* Cory is now referred to *L. virginalis* Gould. On the authority of Dr. L. Stejneger (ined. MS. letter, pp. 147, 148) the generic name *Loxigilla*, long in current use for *Fringilla noctis* Gm. and allies, is supplanted by *Pyrrhulagra* Bon., the type of *Loxigilla* being an Australian species to which and its congeners the name properly belongs. Mr. Cory characterizes as new subspecies *Pyrrhulagra noctis grenadensis* from Grenada and St. Vincent, and *P. n. ridgwayi* from Dominca and the Lesser Antilles situated to the northward of this island. Mr. Cory has also extended critical notes on *Vireo calidris* and its allies, on *V. crassirostris*, and on *Cœreba bartolemica*, etc.—J. A. A.

Dixon's 'The Migration of Birds.'[1] — Mr. Dixon is well known as a popular writer on British birds, among which he easily takes high rank. In his present work he has attempted a weighty task, which is no less than a serious attempt "to bring our present knowledge of migration within the limits of order, or to reduce it to law." His book, he tells us, "embodies the result of twelve years of diligent general study and research, and of at least two years' close application and thought, and will, I earnestly hope, serve at least the humble purpose of paving the way towards a more important record." "The whole subject of migration is so vast, so wide reaching, and so complicated, that it would be absurd to regard it as exhausted, and the present volume must be looked upon only as a pioneer."

Mr. Dixon has succeeded in bringing together, in a very readable and suggestive way, an extensive array of general facts bearing upon the

[1] The Migration of Birds | an Attempt | to Reduce Avian Season-Flight to Law | By Charles Dixon | author of 'Rural Bird-Life,' 'Evolution without Natural Selection,' .... [= 5 lines of additional titles of books, and motto of 3 lines.] London: Chapman and Hall, Ld. | 1892. — 8vo., pp. xvi+300.

subject in hand, mixed with many assumptions which the general reader would hardly be able to distinguish from the really sound data. Here and there, however, are lapses that betray the amateur rather than the scientific investigator, as where at page 69 he speaks of young birds as being "in the normal course of things the first to be in position to migrate; they travel in their first plumage, and consequently are ready to go as soon as they can fly." While this may be true of a few water birds, it is notoriously untrue of the Passeres and the great majority of land birds. Again (p. 66) Swallows and Shrikes are mentioned as birds "in which the plumage is renewed in early spring," in contrast with others in which the "change is undergone in autumn." We fear Mr. Dixon's field experience, at least as a collector, has been limited, evidence of which is unfortunately not lacking in various parts of the work.

The book consists of twelve chapters, having the following headings: 'Ancient and Modern Views of Migration'; 'Glacial Epochs and Warm Polar Climates'; 'The Philosophy of Migration'; 'Routes of Migration'; 'Emigration and Evolution'; 'Internal Migrations and Local Movements'; 'Nomadic Migration'; 'The Perils of Migration'; 'The Destinations of the Migrants'; 'The Spring Migration of Birds'; 'The Autumn Migration of Birds'; 'Migration in the British Islands.' These titles serve to give a general idea of the character of the book.

In the first chapter some fifteen pages are devoted to a discussion of the theory of hibernation, the author reciting the well-worn evidence and familiar arguments in its favor, the former dating from the seventeenth century onward; he adduces nothing new on the subject. "Hibernation," he says, "so far as we can learn, only applies to a few individuals, and no species of bird has yet been discovered in which the practice is universal, if we except conditionally the [American] Swift (*C. pelagica*), to which allusion has already been made. As for myself, I neither accept nor deny it, having personally seen nothing to refute or confirm it, although fully believing it possible," etc.

Mr. Dixon generalizes with great freedom respecting all of the more prominent features of the general subject of migration, often thereby disclosing an ignorance of the facts in the case naturally to be expected in one who has a ready explanation for nearly every problem. Thus at page 24, after instancing the various degrees of migration exhibited in different species, he says: "From the above facts, we may propound the law that wherever the breeding area of a species intergrades with its winter range, migration among individuals breeding in the infringing districts has been suffered to lapse." In this country the contrary is well known; while this 'infringing district' may be permanently occupied by the species, it is evident that it is not occupied the whole year by the same birds; the summer representatives moving more or less to the southward in winter and their places being taken at that season by birds of the same species which have passed the breeding season further north.

Respecting the cause of migration we have the following: "Birds migrate from necessity, not from choice; . . . . I do not know of any

instance where some or all of the individuals of a species quit their breeding-grounds unless compelled to do so by severity of climate, failure of food, or both" (p. 24). "Amongst birds in which the habit of migration is dominant, the impulse to migration is unquestionably instinctive, in the sense of being transmitted from parent to offspring, which has become so deeply rooted in the uninterrupted course of countless ages of passage to and fro, that in many species nothing but death can eradicate it. . . . This desire to migrate gradually becomes an overwhelming desire, before which all other inclinations bow, and at last the great flight is commenced. But here instinct, hereditary desire, ceases its sway; reason, memory, knowledge of locality and perception take its place" (p. 26). Again he says (p. 70): "It must not be supposed, however, that because the impulse to migrate is inherited from their parents, the *ability* to do so is equally hereditary. That has to be acquired; the road has to be pointed out by the more experienced guiding birds, and the long, often circuitous, route has to be *learnt* by the experience of not one but many annual journeys to and fro."

How this is brought about, Mr. Dixon proceeds to explain. The pioneers, the "*avant-courières* of the migrating army," he tells us, are the barren or unmated birds which have no home ties, or else those that have lost their eggs or young broods, and are thus free from any restraining influence due to parental instinct, in which "the desire to migrate often becomes so prematurely strong that they begin to leave their summer quarters in some cases even before their moult is absolutely completed." The young birds of the year are next to follow, as, since "they travel in their first plumage," "they are the first to be in position to migrate," and "consequently are ready to go as soon as they can fly." (!) "A week or so after the young birds have left, the adult males begin their migration, having got over the moult a little earlier than the females, the latter being delayed somewhat by maternal duties, so that their departure is a little later still. The rear of the great migrating army" is brought up by the halt and the lame, or by birds delayed "from various causes," either in starting or on the way. In the spring migration the order of return is somewhat reversed, the adult males going first, followed soon by the females, later by the young of the previous year, and last of all by "the weakly and the wounded." "Unquestionably the one grand dominating impulse of migration in spring is reproduction" (p. 202).

We have thus the complete history of the migratory movement, including its causes, manner of inception, and the methods of its execution, down to even minute details. Unfortunately, however, many of his statements are purely assumptions, impossible of verification, and often improbable, though given with the positiveness of observed facts; and he fails to note their occasional lack of harmony, amounting in some instances to complete contradiction.

He states that "we can only make the wildest guesses at the time occupied by individual birds in reaching their summer or winter quarters. . . . Probably migrating birds do not average more than 300 miles per

day, during their journey north or south." A little attention to the report on 'Mississippi Valley Bird Migration,' by Professor Cooke (which, by the way, there is nothing in the book to show that our author ever heard of) would have shown that we are not left to the "wildest guesses" on this subject, or that anything like an average journey of "300 miles per day" is ordinarily made by birds while on migration. The Dotterel (*Eudromias morinellus*), which "breeds on the tundras of Arctic Euro-Asia, and winters in Africa, north of the Equator," he supposes to make the "enormous flight of quite 2000 miles" between these two points, "without a rest, and between sunset and sunrise,"—or, to put the case more definitely, by flying at the rate of 200 miles an hour from 7 P.M. of one day till 5 A.M. of the next—an average rate of three and one-third miles per minute for ten consecutive hours! "Each migratory bird," he says, "must have a wonderful knowledge of the topography of its own particular routes, aided by its marvellous power of memory and keenness of sight. I would suggest, however, that the migration flight reaches its highest altitude when passing over seas. These offer no landmarks, no bearings, nothing that maa serve as a guide; consequently the line of flight rises to a sufficient altitude to enable the bird to bridge the passage with its keen powers of vision." Besides: "The mere mechanical labour of flight is rendered much easier of performance in the more rarefied atmosphere of these lofty regions of space."

Although the author so modestly characterizes his book "as only a pioneer" in this interesting field, where previously was merely a "chaos" of "raw and tangled data," the reading of the two chapters entitled 'The Philosophy of Migration,' and 'Routes of Migration,' to say nothing of the one on 'Glacial Epochs and Warm Polar Climates,' begets the feeling that if all Mr. Dixon says is to be taken as sound "Philosophy" and knowledge "reduced to Law," little is left for future investigators to settle among all the many hitherto troublesome problems relating to the migration of birds. However extensive Mr. Dixon's researches may have been into the literature of the subject, he rarely gives his readers any clue to the sources of his information, or any opportunity for verification of alleged facts. There is, in fact, hardly a direct citation of any work or paper on the subject, excepting a few references to some of the author's former works, and a few references given in the chapter in which the subject of hibernation is treated. Many of his assumptions and theories, however, are not new.

For the most part the author's treatment of the subject is more or less oracular. His agreeable style and considerable power of imagination, aided by a fair conception of the general subject, despite a rather loose grasp of the underlying facts, will doubtless render his book an attractive one to the general reader, and a profitable venture for both author and publisher. The book, though at many points untrustworthy, is suggestive, and it may be read with interest and profit by even those who may not approve of all of the author's generalizations. — J. A. A.

Torrey's 'The Foot-Path Way.'[1] — Mr. Torrey's writings always have a charm in their happily worded sentences that never dull the delicate edge of his humor, and that bring us the fragrance of the northern woods without loss of any of its freshness, but each time he gathers together a new volume we realize more and more the weightier reasons for his preëminence in the group of writers with whom one naturally associates him. He is not merely a philosopher and a sayer of happy things. He observes nature keenly as well as sympathetically, and with a spirit of scientific caution that stamps his work with a value which the writings of many a more prominent ornithologist will never possess.

About two thirds of the chapters in the present collection are devoted to birds, and in them he tells much that is interesting besides some facts of real importance—as for instance the record of the Pine Grosbeak as a summer bird on Mt. Lafayette, New Hampshire. Two chapters are given to his experience of the breeding habits of *Trochilus colubris;* there is another upon 'Robin Roosts'; and such titles as 'June in Franconia,' 'The Passing of the Birds,' 'A Great Blue Heron,' and 'December Out-of-doors,' give a fair idea of the other ornithological contents of the volume. Most of the chapters have already appeared in the pages of the 'Atlantic Monthly,' but their reappearance in the present form deserves a cordial welcome. — C. F. B.

Ornithological Report of the Canadian Institute.[2]—This publication is a record of the members' observations reported at the meetings from April 15, 1890, to June 9, 1891. It contains among other things a detailed report, of fourteen pages, from a number of observers, on the occurrence of the Evening Grosbeak in Ontario during the winter of 1889–90, and an annotated list, by W. L. Kells, of nearly a hundred and fifty species occurring at Listowel, Ontario. In addition to these there are a multitude of brief notes, some of the highest interest, others less important, relating many of them to habits, but the majority to dates of migration, etc., of various species, rare and common. With hardly an exception the localities referred to are all within the Province of Ontario. It is impossible here to quote any, even the most interesting, of the records, in spite of the importance of many of them, especially of such as bear upon the faunal peculiarities of the region.

The number of persons who have contributed to the report is large, and their work seems, on the whole, to show unusual accuracy as well as

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[1] The Foot-Path Way | by | Bradford Torrey | [five lines=quotation] | [vignette] | Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1892 — 16°, pp. [iv,] 245.

[2] Proceedings | of the | Ornithological Sub-section | of the Biological Section of the | Canadian Institute | for | 1890-91 | edited by the editing committee. | (Extracted from the Proceedings of the Canadian Institute by permission | of the Council.) | — | Price--25 cents. | — | Toronto: | The Copp, Clark Company, Limited, | 9 Front Street West. | — | Published Nov. 1892. — Proc. Canad. Inst., Vol. III, pp. 27–89.

activity in the field. If they can continue to accumulate data at the present rate, we may soon hope to know more of the birds of the Province than of almost any other part of Canada.

The only serious fault to be found is with the arrangement of the matter, which seems to have been printed in the order in which the observations happened to be reported at the successive meetings. There is a vast mass of valuable material, but much of it is, for this reason, almost inaccessible. This difficulty might have been to a great extent remedied by a good index, which is sadly lacking.—C. F. B.

Publications Received.—**Allen**, J. A. On a collection of Birds from Chapada, Matto Grosso, Brazil, made by Mr. H. H. Smith. Part II. Tyrannidæ. (Bull. Amer. Mus. Nat. Hist., IV, pp. 331-350.)

Büttikofer, J. (1) A Review of the genus *Rhipidura*, with an enumeration of the specimens in the Leyden Museum. (Notes from the Leyden Mus., XV, pp. 65–98.) (2) Europäische Zugvögel als Gäste in Liberia. (Hauptberichte des II-ten Internat. orn. Congress zu Budapest.)

Chapman, Frank M. Notes on Birds and Mammals observed near Trinidad, Cuba, with Remarks on the origin of West Indian Bird-Life. (Bull. Am. Mus. Nat. Hist., IV, pp. 279, 330.)

Cory, Charles B. Catalogue of West Indian Birds. Containing a list of all species known to occur in the Bahama Islands, the Greater Antilles, the Caymans, and the Lesser Antilles, excepting the Islands of Tobago and Trinidad. 4to, Boston, 1892.

Dixon, Charles. The Migration of Birds, an Attempt to reduce Avian Season-Flight to Law. 8vo. London, 1892.

Hartert, Ernst. (1) On the Birds of East Prussia. (Ibis, 1892, pp. 504–522.) (2) On a little-known Species of Lark, of the Genus *Otocorys*. (Ibis, 1892, pp. 522, 523, pl. xiii.)

Leverkühn, Paul. (1) Bericht über eine Reise nach Ungarn im Frühjahre 1891. (Hauptberichte des II-ten intern. orn Congress zu Budapest.) (2) Zur neuen ornithologischen Nomenclatur. (Die Schwalbe, XV, No. 7.) (3) Ornithologisches aus Schiltberger's Reise. (*Ibid.*, Nos. 13 and 20.) (4) Ueber eine interessante Schwarzspecht-Höhle. (Orn. Monatsschrift des Deuts. Ver. zum Schutze der Vogelwelt, XVI, No. 9.) (5) Litterarisches über das Steppenhuhn, nebst Original-Mittheilungen über die 1888er Invasion. (*Ibid.*, No. 2.) (6) Ueber eine abnorm. gefärbte Ente. (Zeitschr. f. Orn. u. prakt. Geflügelzucht, XVI, p. 102.

Lockwood, Samuel. Why the Mockingbirds left New Jersey—a Geological Reason. (Am. Nat., Aug. 1892.)

Shufeldt, R. W. Ridgway on the Anatomy of Hummingbirds and Swifts. (Am. Nat., Oct. 1892.)

Stejneger, Leonhard. Two Additions to the Japanese Avifauna, including descriptions of a New Species. (Proc. U. S. Nat. Mus., XV, pp. 371–373.)

Actes de la Société scientifique du Chili, II, 1892, Ière et IIieme Livraison.

American Field, XXXVIII, Nos. 13–26.

American Journ. Sci., Oct.–Dec., 1892.

American Naturalist, Sept.–Dec., 1892.

Annals Scottish Natural History, No. 4, Oct., 1892.

Bulletin of the British Ornithologists' Club, Nos. 1–3, Oct.–Dec., 1892.

Canadian Record of Science, V, Nos. 3 and 4, 1892.

Forest and Stream, XXXIX, Nos. 12–26, 1892.

Naturalist, The, Month. Journ. Nat. Hist. for North of England, Nos. 206–209, 1892.

Observer, The, III, Oct.–Dec., 1892.

Ornithologisches Jahrbuch, III, Sept. 1892.

Ornithologist and Oölogist, XVII, Nos. 8–11, 1892.

Ottawa Naturalist, VI, Oct.–Dec., 1892.

Proceedings Acad. Nat. Sci. Phila.,.1892, Part II, Apr.–Oct.

Proceedings and Transactions of the Nat. Hist. Soc. Glasgow, III, Part II, 1889–90 (1892).

Records of the Australian Museum, II, Nos. 2 and 3, Aug. 1892. Also Report of Trustees of Australian Museum for 1891.

Sitzungs-Bericht der Gesells. naturforsch. Freunde zu Berlin, No. 8, 1892.

Zoe, III, No. 3, Oct. 1892.

Zoölogist, Oct.–Dec., 1892.

GENERAL NOTES.

Larus argentatus smithsonianus.—In a letter dated Sept. 28, 1892, from Captain Edward Fogarty of the Brenton Reef Lightship he writes: "Our old friend 'Gull Dick' [Auk, IX, 227] has again appeared for the twenty-first season, being a little earlier than last year. The bird looked as if it had suffered somewhat from the effects of the recent northwest gale, for it is minus two feathers from one wing and one from the other, otherwise the same old Dick. The bird arrived at five o'clock on the afternoon of September 28, 1892. On receiving its supper it appeared quite hungry, devouring five pieces of pork each the size of a hen's egg. There have been a few other Gulls around the past three or four days, but they are all gray ones."

On the morning of August 28, 1892, at Nantucket, Mass., I saw two white and two gray Herring Gulls, four in all. They probably came on the heavy northeaster (wind blowing at the rate of 37 miles an hour) on the afternoon and night of the 26th.—GEORGE H. MACKAY, *Nantucket, Mass.*

Branta canadensis.—At Prince Edward Island on September 6, 7, and 8, 1892, Canada Geese gathered at Hogg Island flats, at the mouth of Richmond Bay, to a greater extent than has ever been known before at this season of the year, estimates of the number being impossible. On September 9 they rose up in the air, and remained in sight some thirty minutes. As watched from a distance of about two miles they had the appearance of a large thunder cloud over a mile in length. Mr. William Everett of Dorchester, Mass., who visits Prince Edward Island every season has kindly furnished me with the above information.

Mr. H. G. Nutter of Boston informs me that he saw at Ponkapog Pond, Mass., Oct. 17, 1892, four flocks of Canada Geese flying southwest. One flock contained seven birds; one, eleven; one, thirty-two; and the other, forty to fifty.—GEORGE H. MACKAY, *Nantucket, Mass.*

Branta bernicla at Nantucket, Massachusetts.—I am informed by Mr. Charles E. Snow that on Nov. 22, 1892, while shooting at the extreme western end of Nantucket, he saw large numbers of Brant (*Branta bernicla*) flying towards the southwest. They passed mostly through the 'opening' between the islands of Nantucket and Tuckernuck. Some of the flocks contained from one to two hundred birds. He also noted several hundred American Eider Ducks (*Somateria dresseri*) well up in the air flying in the same direction. The wind was north-northwest and northwest.—GEORGE H. MACKAY, *Nantucket, Mass.*

Notes on the American Bittern.—Late last September a female *Botaurus lentiginosus* was discovered by some boys upon the margin of a small pond at a short distance behind my residence. It was a most unusual locality for the species to occur, and its coming there appeared to have been due to the fact that the bird was exhausted by long flight. After flying a few yards it was easily captured, and was brought to me alive, without having received any bodily harm whatever. Next morning it had recovered no little of its strength, and it was remarkable to observe how noiselessly and with what ease it could fly about a furnished room without overturning any small object of furniture. It gracefully flew up from the floor and perched upon the curtain rod of a high window, where it sat for an hour or more in a characteristic position, as motionless as a statue. If approached when upon the ground, it eyed you keenly, assumed a squatting posture, widely spread out the feathers at either side of the neck, while it slightly raised those of the rest of the body and its wings; and finally, when it considered you within the proper distance, drew all its plumage close to its body and delivered, as quick as a flash, a darting blow with its beak. This thrust, I am sure, is generally given with sufficient violence to pierce one nearly through an eye, even were the lid instinctively drawn down to protect that organ. By such a blow it can easily stab a large frog through and through its head, impaling the creature upon the end of its beak,—a feat I have seen the bird perform. A loud blowing noise accompanies this attack of the Bittern, which varies in its intensity,

—depending apparently much upon the degree of anger to which the bird has been excited by its tormentors. My captive behaved much in the same way when held up by the legs in front of another person, and one had to exercise great care to avoid its quick and well-delivered thrusts. At the end of three or four days, it having eaten nothing up to that time, nor drunk any water, I offered it a live medium-sized frog to try its appetite. It promptly laid out that poor batrachian by a few telling stabs given with its beak, sending one home every time the animal moved a limb. Immediately after killing it, it was picked up with the bill, and throwing back its head the bird attempted to swallow the morsel. In this it failed after several trials, and finally abandoned it for good and all. This Bittern lived twelve days without ever having eaten a single thing or swallowed a drop of water. It passed several thin, cream-colored evacuations from the bowels every twenty-four hours, and died, apparently without any pain, in a squatting position, absolutely unruffled in plumage, on the evening of the twelfth day—a plucky fowl to the instant of its death.

There is one very interesting point to observe here, and it is the fact that the lower the position a bird occupies in the system the greater the length of time it seems to be enabled to go without partaking of any nutriment whatever. Gannets and Cormorants will live nearly a month without either eating or drinking anything, while on the other hand any of the small Passeres will succumb in a few days to such treatment. In this connection it is important to note that many lizards will live several months without consuming a morsel of food or a drop of water. This may be another particular in which the lower birds approach their reptilian kin.

While dissecting this Bittern with the view of saving its skeleton, and observing what else I could in its anatomy, I found that it possessed a peculiar arrangement and modification of the vertebræ and certain muscles in the upper third of the neck, much as we find it in *Plotus anhinga*, and in a less marked degree in Cormorants, the Gannets, and Pelicans. This modification, which is associated with the power of the birds mentioned (especially the Darters and Bitterns) of giving a quick thrust with the beak, has been well described by Garrod, a paper among his 'Collected Scientific Memoirs,' and by Donitz, and is well worthy of close study and comparison. Garrod does not mention having observed it in *Botaurus* and its allies.—R. W. SHUFELDT, *Takoma, D.C.*

Tringa alpina on Long Island, New York.—On Sept. 15, 1892, I secured a European Dunlin at Shinnecock Bay. During a week's trip I secured only one *T. a. pacifica*. The specimen was identified through the kindness of Mr. F. M. Chapman of the American Museum of Natural History. Coues says of this species, "A straggler to Greenland"; Ridgway, "Accidental or casual in eastern North America (west side of Hudson Bay)." Its occurrence in the United States has heretofore seemed doubtful.—CURTIS CLAY YOUNG, *Brooklyn, N. Y.*

The Migration of Numenius borealis in Massachusetts in 1892. — Although there was at the right time considerable weather sufficiently severe to deflect and land Golden Plover (*Charadrius dominicus*), either it was insufficient to cause a like result on such powerful fliers as Eskimo Curlews, or none were passing our coast at the time. I have consequently but a meagre record to present. At Nantucket on the afternoon and during the night of Aug. 26, it blew hard (at rate of 37 miles an hour) with rain. On the next day two birds were shot, two were seen also on Tuckernuck Island; these were the first birds of the season. None were seen between this date and Sept. 1, when one rather lean bird was shot; the wind was west to north, a fresh breeze, late in the afternoon it backed to northeast. My next record was on Sept. 6 when five birds were shot on Tuckernuck Island, and three seen and one shot on Nantucket. No more were noted until Sept. 15, on which date three were seen and one killed on Nantucket. On the afternoon of the 14th the wind was strong, southeast, increasing to rate of 35 miles an hour at midnight, with hard rain. Towards morning of the 15th the wind changed to northwest, a light breeze. These instances cover all the birds noted during the entire season on the above islands. Mr. William Everett of Dorchester, Mass., who visits Prince Edward Island regularly every year, informs me that seven Eskimo Curlew were shot at Alberton, and one at Darnley, on or about Aug. 28, which were all that he heard of during the entire season. — GEORGE H. MACKAY, *Nantucket, Mass.*

Charadrius squatarola.—Mr. William Everett of Dorchester, Mass., has furnished me with the following information. At Malpeque, Prince Edward Island, August 22, 1892, during mild, pleasant weather, a very large flight of Black-bellied Plover appeared, the number that landed being estimated at about one thousand. It was composed entirely of adults with black, and black-and-white, breasts. They established themselves in several fields at Lower Malpeque where they are locally known as 'Sea Plover.' On the night of Sept. 14, 1892, it rained and was misty with southwest wind. On the next day the greatest number of young birds that was ever noted in this vicinity at one time was seen in and flying about the fields of Lower Malpeque. While driving around late in the afternoon as many as one thousand birds (estimated) were seen in four fields. Many others were noticed flying, which did not stop. All the adults mentioned above and which also had frequented the same fields where the young birds were now, had previously departed.—GEORGE H. MACKAY, *Nantucket, Mass.*

The Migration of Charadrius dominicus in Massachusetts in 1892. — At Nantucket, Aug. 18, a flock of fifteen Golden Plover was seen, the first noted this season. Aug. 20, I saw five scattered birds. I think there must have been a storm at sea recently, for the surf was running high and breaking over the beaches into the ponds near the shore on the south side of the island, notwithstanding the fresh north wind. Large numbers of

birds must have passed over the island tonight, as they have been heard whistling during the greater part of the night; none stopped. This was the first movement noticed this season. In the afternoon the wind changed to west by south, clear, warmer and pleasant.

Aug. 25 I saw a flock of twenty two, and shot three of them. The wind was south by east, fresh, in the forenoon; more moderate in the afternoon; the weather was thick outside the island, barometer 29.75 and falling. Aug. 26, I was driving over the Plover ground at daylight. The wind remained southeast up to 3.30 A.M.; at 4.10 A.M. a thunder and lightning squall with severe rain and wind came blowing north by east; the wind remained so until eight A.M. when it hauled northeast, moderate and warm; at one P.M. wind hauled east and it commenced to rain again, having ceased from eight A.M. until this time. I saw one flock of fifteen, another of nine, another of twelve, and two or three scattering birds; during the afternoon the wind was blowing at the rate of thirty-seven miles an hour with hard rain. A large number of Golden Plover landed at night, this being the second movement. Aug. 27, I was out at daylight. The weather was very thick, with wind northeast and a little rain. I saw a good many Plover, in fact more than for the past three years put together. In the afternoon the wind backed to north by west, and later to north, the weather continuing thick, almost rain at times. Much to my surprise I saw one flock of about fifty birds go up in the air and leave on migration, evidently not liking the surroundings. About three hundred birds were shot that day on Nantucket and Tuckernuck Islands. The greater part of the birds left in the afternoon and night. I hardly expected they would go, although the wind was fair (north), for the weather was very unsettled. I judge they considered anything preferable to remaining, as they were being greatly harassed. I never in my experience knew the Plover to be so restless and unwilling to remain as they appeared to be. Instead of coursing over the ground low down, as is their usual custom after landing, they kept up in the air, in great part at an altitude of forty to one hundred yards, evincing the strongest disposition to continue migration, notwithstanding the unsettled condition of the weather, which did not apparently warrant their leaving. I noticed also that most of the flocks led to the windward, which is the reverse of what is usually the case when here.

Aug. 28, I was driving over the ground as usual at daylight. The wind was north, and increasing, the weather very misty with rain at intervals during the greater part of the day. The only birds left were some scattering flocks and about seventy to one hundred birds in a field which is preserved. No one shot many birds, and the aggregate killed was very small. Aug. 31, the only birds seen were those living in the field which is preserved. Sept. 1, I drove over the western ground and saw about a dozen Plover altogether, one of which was a Palebelly (young bird), the first for this season. The wind was west by north, then west, from which point it backed to northeast. On Sept. 2 and 3 there was nothing to note.

Sept. 4 was cloudy with wind southeast, then east, then northeast; it began to rain in the afternoon; at ten P.M. it was raining and blowing hard; it was thick during the night with wind north-northeast, with rain at intervals; from three until ten A.M. it blew very hard, with rain at times. Nothing to note. Sept. 5, I was on the western ground at daylight. The wind kept backing until it reached southwest in the afternoon with clear weather, and bright moon at night. I rather expected some birds to come on but none landed. I was out until 5.30 P.M.

The weather was pleasant and clear, and no birds came, until Sept. 15. The previous evening the wind was strong, southeast; at midnight it was blowing thirty-five miles an hour and raining hard, continuing until near morning when the wind changed to northwest, a light breeze. I saw two flocks of young birds of about twenty-five and thirty birds respectively, the larger flock, although undisturbed, I saw mount up into the air and go on migration. These two flocks were apparently new arrivals. I also saw several flocks of black-and-white-breasted birds which also, I think, landed the night before. On Sept. 16 I saw in all about one hundred Plover, but I am quite certain the greater part of them were from the field which is preserved. Sept. 18 I drove eastward where we saw about fifty birds (some of those which were living there). In the afternoon we saw a flock of about thirty young birds (probably the flock noted on Sept. 15), and another flock of five old and one young bird.

For the next week the weather was clear and pleasant, but with considerable wind from west to north. No new birds came on as far as I could ascertain. I saw about one hundred young birds on Sept. 25, but I am not certain that I did not see some of them more than once, as these were birds that were living on the island.

At about four o'clock on the afternoon of Sept. 26 a flock of Plover containing about forty birds was seen flying towards the west from the northeast, they were pretty well up in the air. During the following week (to Oct. 3) the weather was clear and pleasant. I drove over most of the ground twice, and made inquiry, but did not see or hear of any new arrivals. I regarded the migration as over for the season at that time, though it was still possible, but not probable, that some young birds might yet be passing.

Summary. — The season of 1892 has shown much weather favorable for landing Plover; it has also shown that more birds, both old and young, did land than for the previous three years combined. It also showed that on Aug. 27, the afternoon following the night of their landing, owing to their being greatly harassed, the larger portion of the birds departed, notwithstanding that the weather conditions were very unsettled and apparently scarcely warranted their leaving. Also that while they were on the islands of Nantucket and Tuckernuck they manifested the greatest uneasiness and reluctance in remaining, leading up to windward well up in the air with the possible idea of turning back and plainly showing to me, as far as I was able to interpret their actions, that they were remaining much against their will, seemingly determined to leave at the earliest

possible moment; this they did in great part late on that afternoon and during the night of Aug. 27, having landed on the night of Aug. 26. Those birds which found rest in a certain preserved field would immediately return to it and remain there, if shot at while flying outside. These particular birds continued to reside in this field until one hundred and thirty-two had accumulated, when the owners of the field commenced to shoot them; this drove them from this place to others where they were at once pursued and shot until but few remained by Oct. 1, 1892.

My friend Mr. Wm. Everett, of Dorchester, Mass., sends me the following note: At Malpeque, Prince Edward Island, Aug. 23, 1892, during mild and pleasant weather, the first flight of Golden Plover probably landed on the night of Aug. 22, for they were first seen the next day. A few hundred birds remained in the various fields, but the greater part of them passed south. There were but few Plover shot here this season. — GEORGE H. MACKAY, *Nantucket, Mass.*

Black Vulture in Maine.—Under date of November 3, Mr. Geo. A. Boardman writes me as follows: "Our local taxidermist (Calais, Maine) received a Black Vulture (*Catharista atrata*) which was killed here. This makes the sixth I have known to be taken in this vicinity, while only one specimen of the Turkey Buzzard (*Cathartes aura*) has been secured in this locality. The latter I consider much the more northern bird." —WILLIAM DUTCHER, *New York City.*

Some Additional Eastern Records of Swainson's Hawk (*Buteo swainsoni*).—Proofs that Swainson's Hawk visits New England at no very infrequent intervals and perhaps in some numbers, multiply steadily if slowly. I now have two fresh specimens to report; one killed at Essex, Massachusetts, May 29, 1892, the other near Calais, Maine, about October 8, 1892.

The Essex specimen was sent in the flesh to Mr. M. Abbott Frazar, who mounted it and afterwards sold it to me. It is a fine old bird, a female, in the melanistic phase, wholly dark colored (sooty or clove brown) both above and beneath, save on the bend of the wing, which is whitish, the under surface of the tail, which is banded with ashy white, and the under tail-coverts and crissum, which are soiled white with faint rusty and brownish markings. There is also a little half-concealed whitish on the forehead and chin and the feathers on the back are bordered with faded brown. Mr. Frazar, whose experience in such matters entitles his judgment to much weight, tells me that the ovaries were undeveloped and that the bird was evidently not in breeding condition, a point of some importance in view of the date of its capture. Of the two Massachusetts specimens previously recorded, one (in the Peabody Museum) was taken in the winter of 1871–72 (Allen, Bull. Essex Inst., X, 1878, p. 22), the other (in the present writer's collection) in September, 1876, at Wayland (Brewster, Bull. N. O. C., III, Jan., 1878, p. 39).

The Calais bird above mentioned was shot by a countryman and brought into town with some Ruffed Grouse. After passing successively through the hands of a provision dealer, who bought it of the countryman, of a lady (a Mrs. Ryder), who bought it of the provision dealer, and of a local taxidermist, by whom it was received and mounted October 10, it found a final and appropriate resting place in the well-known collection of Mr. George A. Boardman to whom I am indebted for these facts as well as for the following description of the specimen: "It is a young bird of unknown sex. The back is black with many of the feathers bordered with yellowish; the tail lighter than the back with about a dozen black bars; the head, neck, and lower parts fine, delicate yellowish, the feathers of the head and neck striped with black; the breast spotted coarsely along its sides, more finely across the middle, with black. The throat and tail coverts are yellowish white. Beneath the chin black markings, arranged in series, form a distinct mustache. With its generally ochraceous ground color and bold dark markings the bird is a strikingly handsome specimen." There are two known instances of the previous occurrence of this species in Maine, at Gouldsboro, Sept. 15, 1886 (Brewster, Auk IV, April, 1887, p. 160), and at Glenburn near Bangor, May 19, 1888 (*id.*, *ibid.*, V, Oct., 1888, p. 424).

In this connection it may be worth while to mention still another Eastern specimen of Swainson's Hawk which is preserved in the Greene Smith collection of mounted birds.[1] This specimen, so the label states, was killed in Onondaga County, New York, in October, 1877, and was "presented [to Mr. Smith] by T. Bex and Ed. Lodder of Syracuse." It is a young bird, of the light or normal phase, in fresh autumnal plumage. So far as I know, it has never previously been recorded.—WILLIAM BREWSTER, *Cambridge, Mass.*

Swainson's Hawk in the East.—Two records of the occurrence of this Western *Buteo* hundreds of miles east of the eastern boundary of its habitat have come to my notice through Mr. Geo. A. Boardman of Calais, Maine, and Mr. L. S. Foster of New York City. Both individuals were immature birds, and were shot within six days of each other, although some hundreds of miles apart. It may be possible that a small eastward migration of this species took place in the early fall, and these records may be added to by the readers of 'The Auk.' Mr. Boardman says, "The Hawk is a young Swainson's, a fine specimen, and was shot Oct. 6, within six miles of Calais. It is the first one I have ever known to occur here. It is now in my collection."[2]

The New York specimen was shot by and is in the possession of Mr. W. Williams of Brooklyn, New York. It was examined and identified by Mr. Arthur H. Howell, who obtained the following information about the specimen: It was shot October 14, at Meadow Brook Farm, near

[1] Lately given by Mrs. Smith to the Museum of Comparative Zoölogy.

[2] This is the same specimen described above by Mr. Brewster.—EDS.

Cornwall, New York. When first seen it was on the ground, but on approach flew to a fence near by. On being shot at, it flew with a steady but leisurely flight to a tree, when it allowed an approach within easy gunshot. While on the tree it exhibited no fear, merely turning its head to watch the movements of its capturer. Mr. Howell adds that the specimen is a beautiful one, highly colored, and having considerable black on the under parts. The following measurements were taken from the mounted specimen: wing, between 18 and 19 inches; tarsus, 2 $\frac{9}{16}$ inches, middle toe, 1$\frac{1}{4}$; tail, 9. These large measurements would indicate it to be a female although the sex was not ascertained by dissection.—WILLIAM DUTCHER, *New York City.*

The Nest of Panyptila cayenensis (Gm.).—On Aug. 23, 1892 after an early morning trip in the woods, I had nearly reached the edge of the plantation when my attention was drawn to a mixed company of birds feeding on berries in an immense tree. The tree belonged to a species common in these forests, a giant among its surroundings, the trunk at least five feet in diameter and the first limb over seventy feet from the ground. Numerous vines of various sizes hung down from the limbs like ropes. Near the ground the trunk spread out into long, flattened arms and buttresses, giving it a diameter at the ground of over thirty feet. Among the birds were a flock of Yellow-tails (*Ostinops montezumæ*), two species of Toucans (*Ramphastos carinatus* and *Pteroglossus torquatus*) and some small Parrots too high up to identify. Wounding a Yellow-tail, I was endeavoring to keep sight of it, when a small bird dashed past and disappeared on the trunk of the tree about seventy feet from the ground. Looking in that direction I noticed a nest, eight or nine inches in length, hanging from the trunk, and so nearly resembling it in color that ordinarily it would have been passed unnoticed. The trunk was perfectly straight for a distance of seventy feet, at which point there was a division, the portion with the nest leaning very slightly, and the nest was attached to the smooth grayish bark on the under side of the trunk, hanging vertically and at the same time almost against the bark, rendering it a very inconspicuous object. The nest when first observed was still quivering from movements made by the bird, proving it to be made of some soft, yielding material. The nest almost exactly matched the bark in color; the entrance, at the bottom, was very large, nearly the diameter of the nest, which appeared to be about three inches at the lower end, with a slight bulging near the top. On shooting into the nest there was a struggle inside which shook it considerably, and presently the bird dropped to the ground. It was a *Panyptila cayenensis*, and on dissection proved to be a male, with the sexual organs only slightly developed.

Visiting the spot next day with a pair of field glasses, I tried to identify the material composing the nest, but beyond its having the appearance of being stuccoed with some substance resembling the bark in color, I could determine nothing. The bark was quite smooth, and the nest appeared to be glued on; although this was not positively ascertained to be the case.

This Swift is quite abundant here, as is also the small gray-rumped *Chætura*. They usually fly very high, though apparently not faster than the Chimney Swift of eastern North America. On cloudy afternoons, particularly after rainstorms, they often fly so low that specimens may be easily obtained. The ordinary note is a 'chee', or 'chee-ee,' rather long drawn out, and at times a 'chee-wee-wee-wee,' uttered in about the same pitch as the note of the Chimney Swift. Wounded birds utter a continual, squeaky, clicking note.—CHAS. W. RICHMOND, *Escondido River near Bluefields, Nicaragua.*

Sharp-tailed Finches of the New Jersey Coast.—While there has been every reason to expect the occurrence of both the Nelson's and the Acadian Sharp-tailed Finches on the maritime marshes of New Jersey during the migrations, there have not been, so far as I am aware, any actual records of their capture in that State. The only mention that I have seen of either race as a New Jersey bird occurs on page 541 of Dr. Nelson's 'Catalogue of the Vertebrates of New Jersey' where it is stated that *Ammodramus caudacutus nelsoni* is "common along the shore" and "breeds in the salt meadows." No mention whatever is made of *A. caudacutus*, so the natural inference is that *nelsoni* is the common breeding bird of the New Jersey coast. This, however, being quite erroneous, Dr. Nelson's remarks must be considered as belonging strictly to *A. caudacutus*.

In view of the above statements the following notes based upon collections made by Mr. I. N. DeHaven and myself may be of interest. *Ammodramus caudacutus* breeds abundantly on the salt marshes from Pt. Pleasant to Cape May Point and probably along Delaware Bay as far up as the salt marshes extend. A few of the birds winter on the marshes at Atlantic City, as specimens have been taken in January and February by Mr. DeHaven. These winter birds were extremely fat, but did not differ in plumage from late fall birds, and were in all respects true *caudacutus*.

A. caudacutus nelsoni occurs only as a migrant, and appears to be more abundant in the fall. A single specimen was taken at Atlantic City on May 9, 1892, by Mr. DeHaven, and on October 2 of the same year several were secured.

A. caudacutus subvirgatus was found associated with the other two races at Atlantic City on October 2, 1892, and a number of specimens were shot. It appeared to be more numerous than *nelsoni*, but less so than true *caudacutus*. This race apparently winters farther south for, as has been already stated, all the winter specimens so far taken by us in New Jersey were *caudacutus*. Doubtless more careful search will show the *nelsoni* and *subvirgatus* to be of regular occurrence in both migrations.

It may be of interest in this connection to record the wintering of *Ammodramus maritimus* in small numbers on the salt marshes of southern New Jersey, specimens having been taken by Mr. Wm. L. Baily on February 22, 1892.—WITMER STONE, *Academy of Natural Sciences, Philadelphia.*

Capture of the Louisiana Tanager at New Haven, Connecticut.—I made one of the most noteworthy captures here on the morning of Dec. 15, 1892, that I have ever taken, viz., a Louisiana Tanager (*Piranga ludoviciana*), a male in immature plumage. I believe the only other New England record is the one taken at Lynn, Mass., Jan. 20, 1878. My bird was exhibited to several persons while still in the flesh as proof of its actual occurrence here. It is not an escaped caged bird, as the feet and plumage clearly indicate.—H. W. FLINT, *New Haven, Conn.*

Dendroica kirtlandi in Minnesota. — I took an adult male Kirtland's Warbler on May 13, 1892, near Minneapolis. When first seen it was in company with White-throated Sparrows in a narrow hedge of small plum trees that divided two ploughed fields. It had flown down and was feeding on the ploughed ground, when I shot it.—H. M. GUILFORD, *Minneapolis, Minn.*

Occurrence and Breeding of the Kentucky Warbler in Connecticut.—On July 10, 1892, while passing through a piece of swampy woods in Greenwich, Fairfield Co., Conn., my ear was caught by an unfamiliar bird note in the underbrush near the path. A short search revealed a bird which I soon saw to be the Kentucky Warbler. Not having a gun at hand, I watched her for some time, suspecting from her manifest alarm that young were near at hand. Such proved to be the case, as a few minutes later I saw her feeding a well-fledged nestling, perched near by.

Returning at dusk, I was fortunate enough to find, a few hundred feet from the former locality, one of the parents, which I secured. It proved to be the male. The female and the young I was unable to find on either this or the several succeeding occasions on which I looked for them. This is, I think, the first record of its breeding in Connecticut.—CLARK G. VOORHEES, *New York City.*

Heleodytes vs. Campylorhynchus.—The name *Campylorhynchus* proposed by Spix[1] in 1824, which has long been used for a genus of Wrens, seems to be preoccupied by *Campylirhynchus* Megerle, a genus of coleoptera. The latter name was published in Dejean's 'Catalogue de sa Collection de Coléoptères,' 1821, p. 84, thus antedating Spix's name by three years. I have not had an opportunity to examine a copy of this edition of Dejean's Catalogue, but Professor Samuel H. Scudder of Cambridge, who has kindly verified the reference, informs me that the name appears on p. 84 without description or any indication that it is used for the first time. Seven species, however, are referred to this genus, and as several of them can be recognized, although now placed in other genera, *Campylirhynchus* Megerle is relieved from the imputation of being a *nomen nudum*.

[1] Aves Spec. Nov. Brasil., I, 1824, p. 77, pl. 79.

As both names are derived from the same roots, have the same meaning, and are practically identical, it is questionable whether the difference in the connecting vowel is sufficient ground for considering them distinct. In case *Campylorhynchus* Spix is rejected its first synonym, *Heleodytes* Cabanis,[1] seems to be the earliest name available for the genus of birds commonly known as the Cactus Wrens.—T. S. PALMER, *Washington, D.C.*

Salpinctes obsoletus in Washington and Oregon.—In his 'Notes on some Birds of Gray's Harbor, Washington' (Auk, IX, 310) Mr. Palmer quotes R. H. Lawrence as giving the Rock Wren a place in his list of the birds of Gray's Harbor, and considers its occurrence west of the Cascades as somewhat doubtful. In 'The Auk' for October, 1892 (p. 357), Mr. Lawrence repeats his statement that *Salpinctes obsoletus* was the species observed at Gray's Harbor and adds that it was also met with at Seattle. It certainly seems rather out of place to meet with this species in the heavy fir forests of the Northwest, but that it occurs cannot be questioned. I took a specimen on May 21, 1885, at the edge of a clearing in the heavy fir timber, a few miles west of Portland, Oregon, a country very similar to that about Gray's Harbor, where Mr. Lawrence met with the species.—A. W. ANTHONY, *Denver, Colorado.*

The Carolina Wren in the Lower Hudson Valley.—The occurrence of the Carolina Wren on the eastern slope of the Palisades furnishes a marked illustration of the influence exerted by river valleys in extending the range of species. While as abundant during the summer in this locality as in any part of its range, it is as yet a comparatively rare bird on the eastern shore of the river, and on the western shore is seldom found far from the cliffs of the Palisades. I have observed it at Fort Lee, New Jersey, and just below Piermont, New York, but for the most part my observations have been confined to the 'Under Cliff' road at Englewood. Here on July 3 a nest containing young was found. It was placed in a small pocket-like opening in the face of a perpendicular cliff fifteen feet from the crest of the Palisades and an equal distance from a ledge below. On the same day within a distance of a mile no less than *ten* Carolina Wrens were seen, and on returning to the place a week later six birds were seen. But, as before remarked, although so abundant here, the birds are comparatively rare in the adjoining country. My friend Mr. Evan Evans, who lives less than a mile west of the spot where the nest was found, tells me that he rarely sees this species except in the immediate vicinity of the cliffs. At West Englewood, distant three and a half miles, I have found one or two individuals each spring and fall, and it has seemed to me that the species was slowly becoming more regular. During 1892 I noted single individuals at West Englewood on May 20 and October 23, and also

[1] Mus. Hein. I, 1850, p. 80.

at Larchmont on Long Island Sound on July 18 and in Central Park, New York City, on August 29. Dr. Mearns does not include it in his 'Birds of the Hudson Highlands,' and Dr. Fisher tells me he has not met with it at Sing Sing. Mr. J. Rowley, Jr., informs me that at Hastings-on-the Hudson a few miles north of Yonkers he sees one or two of these birds each year. But the most interesting evidence concerning the Carolina Wren in the Hudson Valley is furnished by Mr. Bicknell whose notes were made at Riverdale on the eastern shore of the river, exactly opposite Englewood. Mr. Bicknell writes: "About Riverdale the Carolina Wren is certainly more common than it used to be. Up to 1879, when I found it breeding at Spuyten Duyvil, I regarded it as an accidental visitor. My brothers were close observers of birds before me, and they had never seen it, although one had been shot at Riverdale in the late autumn of 1873. Of late years I have come to look upon it as a regularly irregular visitor, and every year I expect to meet with it at least two or three times. . . . It has seemed to me the eastern shore of the Hudson gets the overflow from the Wren population of the slopes of the Palisades, which has undoubtedly been increasing. For years past on occasional visits to the Palisades from spring until late in autumn I have never failed to hear the Carolina Wren, and have frequently heard two singing at the same time. On one occasion I heard two singing and saw still another, all at the same moment." My own more recent experience with this bird on the Palisades, as herein recorded, confirms Mr. Bicknell's remarks, and it would appear that, having become permanently established there, it is gradually spreading through the surrounding country.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

Sitta canadensis appearing in Numbers in the District of Columbia.—Last autumn the writer collected birds quite extensively at Takoma, D.C., and vicinity, especially in the southern part of Montgomery County, Maryland. During all that time and the following winter not a single specimen of the Red-breasted Nuthatch (*S. canadensis*) was observed, and there is every reason to believe that they were not at all represented among the fall migrants of that season (1891–1892). This autumn, however, (1892) the case is entirely different, for in the same localities the bird came early, and in most unusual numbers. They have appeared in loose flocks, associated with the usual autumn small birds, as Juncos, Titmice, Wrens, etc., and upon several occasions one could count as many as thirty or forty of them from a single point of observation. There would be no trouble in collecting as many as fifty specimens in a day. Many birds of the year are among them, as is indicated by their duller plumage and less decided markings. A number of years ago I remember this species appearing thus suddenly one autumn in the neighborhood of Stamford, Connecticut, a place where the writer collected birds for a long time early in the sixties and where the species had not been noticed for many seasons.—R. W. SHUFELDT, *Takoma, D. C.*

Notes from Connecticut.—Among my notes for 1892 the following may be of interest, as relating to the vicinity of Bridgeport.

A fine male Carolina Wren in full song was shot April 8. I was attracted from a distance by the power and richness of its vocalization, and found it dodging in and about an immense pile of cordwood in a recent clearing.

On April 6, at Stratford, the *very* familiar cries of a Blue-gray Gnatcatcher attracted and held my attention for several minutes, when it passed beyond hearing. Although but a short distance away at first, it was not seen, barriers interfering with approach.

Fish Crows (*Corvus ossifragus*) were observed in small numbers early in March, having been rare the preceding winter, if present at all. The morning of March 26, which was warm and clear, they were very common in certain districts, compelling attention by their discordant voices and unusual numbers, evidently fresh arrivals for the most part. They were particularly noticeable until midsummer when they gradually became silent and inactive. Even until May 1 flocks of twenty or thirty were occasionally seen; soon after, however, they were reduced to groups of a few unmated or barren individuals, and widely dispersed, breeding birds. Much more suspicious than the common species, they force themselves upon the attention long before the nest is in sight, in most cases in this vicinity. April 29, at Fairfield, one sat by a nest eighty feet from the ground, and confessed ownership of its young in the latter part of May. On May 12 I took a set of four fresh eggs from a nest seventy-five feet above the ground. This had been commenced in April, and its completion delayed at least two weeks. May 16 I took five nearly fresh eggs of the Fish Crow and one of the Robin from a nest near the summit of an isolated white pine tree in a recent clearing of hardwood growth. Tall timber near by seemed to them less attractive. The female being shot, its mate remained sorrowfully calling for several days, when it again mated and probably met with better success, as they could be seen there till July. A set of five eggs was taken at Mt. Vernon, New York, May 15, 1888, from a nest fully sixty-five feet from the ground, in low, wet woods. They were somewhat common there at that time.

Four Lawrence's Warblers were within a radius of half a mile, three typical and one with the black obscured and the crown dull yellow-olive, as seen by Mr. C. K. Averill and myself. As did all the others, it sang precisely like the Blue-winged Warbler; but it was not secured, as we had no gun. One fine fellow frequented the growth on one side of a small piece of woodland until July at least, while on the other side and within a stone's throw a beautiful Brewster's Warbler spent the greater part of his time. The latter, after patient watching, revealed his mate, a Blue-winged Warbler, and a nest in course of construction. This was in the edge of a pasture bordering a lane and grove. It was poorly concealed in the dead grass at the base of a small shrub among scanty briars and the beginning of a scrub growth, and was plainly visible from any point several feet away. It was constructed as is usual with *Helminthophila*

pinus. When seen again, June 14, it contained four eggs, two of which were Cowbirds,' which were removed. Those remaining brought forth a pair of birds that, as they left the nest, could not be distinguished from normal young of the female parent, as would be expected, whatever the color of the male.

The Nashville Warbler probably breeds regularly throughout southern Connecticut and perhaps even in Westchester County, New York, as a pair spent the summer in Woodlawn Cemetery. I took a beautiful set of five fresh eggs in Bridgeport, June 6. The five nests I have seen were found by accident, mostly a few miles inland. In one place at Seymour, and almost within hearing of each other, five or six pairs have regularly nested for several years. With rare exceptions theirs are the best concealed nests of our birds.

The Worm-eating Warbler is a regular summer resident; I have found them in about every swampy or partly inundated wood, especially if with a rank growth of skunk cabbage. Twenty-five miles inland in the valleys I have also found them rather common, and breeding in the same situations and in kalmia thickets, generally not far from a brook or standing water.

The Hooded Warbler is common in this vicinity wherever the laurel grows in abundance, but is less so toward the central part (Seymour, etc.).

White-crowned Sparrows were abundant, in Stratford at least, during the middle of October (14th), and were by no means rare in the preceding May. At the same time in the spring there was also an unusual number of Bay-breasted Warblers, and in the latter part of the month Yellow-bellied Flycatchers.—E. H. Eames, *Bridgeport, Connecticut.*

On the Occurrence of Three Rare Birds on Long Island, New York.—**Strix pratincola**. — Mr. Wm. Conselyea of Brooklyn has a mounted specimen in his possession, which I examined and identified a short time ago, and which he has permitted me to record. He shot it at Hicks Beach, Long Island, about January 10, 1892. Mr. Conselyea was walking along the beach about four P.M. when he saw a large bird flying steadily and noiselessly over the sand hills towards him. He shot the bird, which makes the fourth record from Long Island[1].

Helminthophila celata.—This bird has been recorded from a number of localities in the Atlantic States, but never from Long Island. The nearest approach to our limits is found in a specimen taken at Hoboken, N. J., in May, 1865, by Charles S. Galbraith [Amer. Mus. coll. no. 39,669]. Dr. Edgar A. Mearns[2] refers to it as a "rare migrant" in the Hudson River valley, and cites a specimen from Highland Falls, N. Y.,

[1] For previous records see Auk, III, 439; V, 180; VIII, 114.

[2] 'A List of the Birds of the Hudson Highlands,' Bull. Essex Inst. 1878.

May, 1875, and two specimens noted by Mr. E. P. Bicknell at Riverdale, N. Y., October, 1876. Mr. W. E. Treat[1] records a specimen at East Hartford Conn., May, 1888, and Mr. Wm. Brewster[2] speaks of a number of other records from New England.

On October 12, 1892, at Flatbush, King's Co., New York, I shot a young male. It was in a hedge-row in company with great numbers of Myrtle Warblers, White-throated Sparrows, and a few other species. My brother and I were driving these birds along the hedge, watching for anything rare, and most of them were very alert and continued their flight at every motion we made. This bird, however, was sitting quietly on a bush, and was at once shot.

Turdus aliciæ bicknelli.—I shot two Bicknell's Thrushes on Oct. 5, 1892, at Rockaway Beach. They were not together, but at widely separated parts of the Beach. I found them exceedingly shy, and it was only after much watching and pursuing of all the Thrushes that were noticed that I secured them. Many Thrushes were observed, but no others of any species were identified, for the cedars which grow on the Beach, and the tangled thickets of briers, afford excellent concealment to ground-loving birds, and in these spots they remained despite our most persistent efforts to dislodge them. Hence it seems probable that some of these others also were *T. a. bicknelli* and that there was a small migration of them at that time.

I have already noted[3] the capture of this bird at Rockaway Beach on Oct. 5, 1889, and may mention the following cases of its occurrence in this region. Mr. Wm. Dutcher writes.—"My Long Island records of *bicknelli* are as follows: Oct. 1, 1881, two, Shinnecock Light; Oct. 23, 1886, one, shot at Astoria; Sept. 23, 1887, one or more, Fire Island Light; Sept. 18, 1889, one, Shinnecock Light. I believe them to be a regular migrant but not nearly so abundant as *aliciæ*." Mr. L. S. Foster writes me that he has three skins of this bird taken at the Statue of Liberty, New York Harbor, one Sept. 18-19, 1889, the others Oct. 11-12, 1891. I believe with Mr. Dutcher that this subspecies is a regular, though uncommon migrant.—ARTHUR H. HOWELL, *Brooklyn, N. Y.*

Rare Birds near Washington, D. C.—The spring migration, which is reasonably productive here about once in every four years, was remarkably so in 1892, in the number of rare and desirable birds it brought to local collectors. For the first three of the following records I am indebted to Mr. Frederick Zeller, a professional gunner, whose almost constant presence on the marshes, and excellent knowledge of local birds, enables him to detect and capture new or uncommon species in the District.

Tantalus loculator.—On July 2 Mr. Zeller brought me two females, adult and young. They were killed on the flats a short distance from the Washington Monument, and on the Maryland side of the Potomac. This is the first record of the species here in seventy-five years. According to

[1] Auk, V, 323.
[2] B. N. O. C., I, 94, 95, and Auk, III, 278.
[3] O. & O., XV, 170.
[4] Auk, III, 443.

Dr. Brewer (Water Birds of N. A., Vol. I, pp. 95, 96) two specimens were taken in the District in 1817; nothing is known as to their disposition.

Gallinula galeata. — On April 19 Mr. Zeller brought me a Florida Gallinule. While the species has been taken here before, still this is the first specimen existing in collections. A few days later, about April 22, Mr. J. D. Figgins secured a second specimen from Frederick, Maryland, and on August 12 Mr. Zeller brought me a young male.

Bartramia longicauda. — Some years ago the Upland Plover is said to have been seen on some hills overlooking the city, but no specimens are known to have been secured. On April 13 Zeller brought me two females killed from a flock of three on the flats. Subsequently a number were heard passing over at night. A few were seen early in August at Laurel, Maryland, and on August 2, about 9 o'clock in the evening, I heard one call as he passed overhead in a southerly direction.

Ægialitis semipalmata. — On Aug. 22 a young female of this species was brought me, having been killed on the flats near the city. This is the fourth record for the District of Columbia.

Empidonax pusillus traillii. — This has always been regarded the rarest of the Flycatchers, very few having been taken up to the present year. On and about May 18, for several days, they were quite common, and a number were taken by the collectors.

Xanthocephalus xanthocephalus. — A female was brought me on Aug. 29, that was killed from a flock of Blackbirds on the marshes adjoining the city. This is the first record for the District.

Ammodramus henslowii. — Although known from this region for many years, this has been considered one of the rarest Sparrows, although always found in one or two localities. On May 30, while exploring a locality about sixteen miles from Washington a large colony was found, extending over a considerable area, and probably over a much larger territory than that traversed.

Geothlypis formosa. — The Kentucky Warbler although a resident of the District is one of the rarest of the family, so much so that but few have been taken, and frequently several years elapse between captures, while the eggs are unknown in local collections. Mr. Henshaw found a vacant nest some years ago, but with this exception the actual nesting in this locality has remained unknown. On May 30 a trip to Johnson's Gully, sixteen miles south of Washington, revealed quite a number of these birds, and frequently they could be heard singing in two or three directions at once. While walking along an old cattle trail, I flushed a bird from a nest containing five eggs directly beneath my feet, and shot her to be sure of identification; the eggs were but little incubated. One week later, June 6, a second nest was found, containing four eggs, slightly incubated, in a location similar to that of the first, and but a short distance from it, and close beside a path. Both nests were at the bottom of the gully, beside the only path traversing its length, and were without the slightest attempt at concealment. — E. M. Hasbrouck, *Washington, D. C.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

A Neglected Branch of Ornithology.

TO THE EDITORS OF THE AUK:—

Dear Sirs, — Of all the characteristics of birds, in the popular estimation, there is probably no one which attracts more general attention than their covering of feathers, and indeed it is one of the most useful distinctions in defining the class. In view of this fact it seems strange that comparatively little has yet been published concerning the distribution of the feathers on the body, and undoubtedly the majority of people still suppose that feathers are as evenly distributed over the skin as is the hair of mammals. Scientists have of course for a long time known and spoken of 'pterylæ' and 'apteria,' and for fifty years at least these have been not uncommon terms. But since the publication in 1840, of Nitzsch's 'System der Pterylographie," there has been very slight advance in this branch of ornithology, and the little that has been published on the subject has been of a very fragmentary sort. Meanwhile the structure, development and growth of feathers has received considerable attention, especially of late years some important work has been done, and the number, form and comparative length of both remiges and rectrices have been carefully noted and much use has been made of such facts in the classification of birds. The presence of crests, ruffs, plumes and exceptional feathers of every sort is always recorded, while in elaborated descriptions of the larger groups, the presence or absence of an aftershaft and the condition of the oil-gland is frequently mentioned. As a matter of fact, however, none of these things are really concerned when we speak of pterylography, for by that term is meant the arrangement in defined tracts of the contour feathers, and for fifty years this interesting subject has been practically neglected while all other branches of ornithology have been making rapid progress.

There are two more or less probable reasons why pterylography has been so slighted. One, which seems to be the view of Professor Newton in his article on 'Ornithology' in the Encyclopedia Britannica, is that the work of Nitzsch is so carefully done that it is complete and leaves little if anything to be added. The other reason for neglect lies in the impression that there is little of practical value to be obtained from further prosecution of such a very technical branch of the science. If these reasons are closely examined, however, it will be readily seen that neither is tenable. While the work which Nitzsch did was not only very carefully done, but for that time very exhaustively, when we consider that he was practically the first to enter this new field, and so like all pioneers peculiarly liable to error, the possibility that careful study will show some mistakes in his

work, is by no means small. Furthermore, the investigations in avian anatomy since 1840 have so changed our ideas of the classification of birds, new and important truths may perhaps be learned from work which he has already done. The enormous increase in the number of known species since that time is another and good reason for believing that new and important facts remain to be discovered in this interesting field.

Since then it is evident that much might be added to the work which Nitzsch has done, the feeling that the subject is of such very slight importance is probably the real cause for its neglect, but careful thought will show that this is a serious blunder, for no investigation in nature can be unimportant if it is conscientiously and zealously worked out, and the number of problems to be solved is at least as great in pterylography as in many more popular branches. The relations between the distribution of pterylæ and the mode of life, or the speed of flight, or the protection of the body, or even the kind of food, have as yet been scarcely thought of, while the relative advance in spacial distribution from what are called the lower, to the higher forms may bring out new facts in the history of evolution. The generic, specific, and even sexual differences which may be found, require investigation and explanation, and these are only a few of the questions involved. But so little has yet been done in America that the mere recording in descriptions and figures of our thousand species will furnish ample occupation for a number of years yet. Thus it will be readily seen that this field of study, so sadly neglected in the past, especially invites the attention of scientists today. American ornithologists have had so much to do in making known the avifauna of our own country that they have a good excuse for having neglected the study of pterylography, but now at least the time has come when they should enter in and possess the field.

Dr. R. W. Shufeldt has already done some very interesting work in this line, and it was an article of his, published in 'The Auk' about three years ago on the pterylosis of certain western Pici which first awakened my interest in the subject. A perusal of Nitzsch's great work, together with some investigations of my own, aroused my enthusiasm over what seems to me a fascinating field for research, and the scarcity of literature on the subject has led me to make this appeal for an apparently neglected branch of ornithology.

HUBERT LYMAN CLARK.

Pittsburg, Pa., Dec. 13, 1892.

[Mr. Clark's letter calls attention to a most interesting and important field for research, in which as yet very little systematic work has been done, the subject proper remaining nearly where Nitzsch left it half a century ago. Many years since the present writer had the good fortune to become a student of zoölogy under the late Prof. Louis Agassiz at Cambridge, Mass., with a view to special work in ornithology. The first subject to which my attention was invited was the structure and distribution of feathers, and the classic work of Nitzsch was soon placed in my

hands. Many months during 1862 to 1865 were given to this fascinating study, with a view to the preparation and publication of a series of illustrated monographs of the pterylography of different families of birds, the Owls being the first it was proposed to treat methodically. Owing to lack of material and other circumstances the work was never completed, but my preliminary studies extended to the leading types of North American birds, and hundreds of preparations were made illustrative of the general subject. Studies of the pterylæ were made partly from freshly killed birds, but mainly from alcholic specimens, which were found to be an excellent substitute for fresh material when the latter could not be obtained. None of the results have as yet been published, and the field is still open. It was found that good taxonomic characters were furnished by the form and character of the pterylæ, as well as by the structure of the feathers themselves. Among the Flycatchers (Tyrannidæ) for example, good generic characters could be found in the distribution of the feathers on the throat and top of the head—as in the number of rows of feathers and their arrangement. Reference is here made to the subject merely to strengthen Mr. Clark's "appeal for an apparently neglected branch of ornithology."—J. A. ALLEN.]

NOTES AND NEWS.

PROFESSOR JOHN STRONG NEWBERRY of Columbia College died, after a long illness, at New Haven, Conn., December 7, 1892, at the age of 70 years. He was born in Windsor, Conn., in 1822, and was graduated from Western Reserve College in 1840, and from the Cleveland Medical College in 1846. In 1855 he was appointed assistant surgeon and geologist to the Government exploring expedition under Lieut. R. S. Williamson, examining the country between the Sacramento Valley and the Columbia River. Later he accompanied Lieut. J. C. Ives in his exploration of the Colorado River, during the years 1857–58. During the War of the Rebellion he was Secretary of the United States Sanitary Commission. At the close of the war he was appointed Professor of Geology and Palæontology at Columbia College, and in 1869 became State Geologist of Ohio. For many years he was president of the Torrey Botanical Club in New York City, and of the New York Academy of Sciences. Although distinguished in early life for his medical knowledge, and later as an eminent specialist in geology and palæontology, he has left his mark upon North American ornithology, through his field work in connection with the early Government expeditions to which he was attached. His report upon the birds of the route surveyed by Lieut. Williamson was published in 1857 in Vol. VI of the Pacific Railroad Reports of Explorations and Surveys.

DR. PHILO R. HOY, the well-known physician and naturalist of Racine Wis., died suddenly at Racine, Dec. 9, 1892, at the age of 76 years. He was born in Richland County, Ohio, in 1816, was graduated from the

Ohio Medical College in 1840, and moved to Racine, Wis., in 1850. He for many years was the most prominent naturalist of the State, holding for a time the position of naturalist on the Geological Survey, and was for four years Fish Commissioner, and later was for three years President of the Wisconsin Academy of Art, Science, and Letters. He is well known to the older ornithologists for his various papers on Wisconsin birds. These papers include 'Notes on the Ornithology of Wisconsin,' published in 1853; 'Some of the Peculiarities of the Fauna near Racine' (1874); 'Journal of an Exploration of Western Missouri in 1854, under the Auspices of the Smithsonian Institution' (1865), 'Man's Influence on the Avifauna of Southeastern Wisconsin' (1885), and numerous minor papers in various scientific journals.

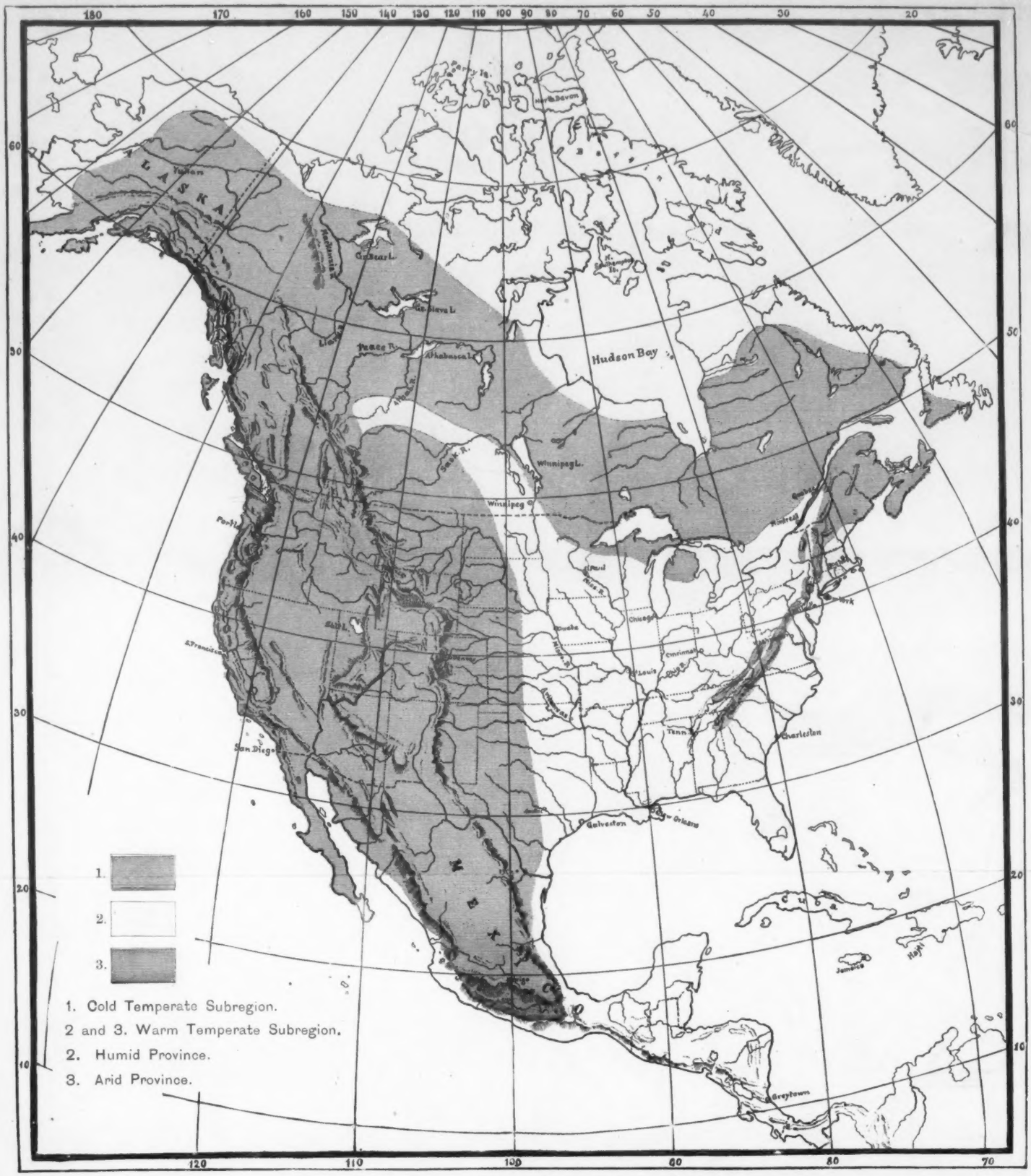
AT THE Tenth Congress of the American Ornithologists Union, Article V, Section 4 of the By-Laws was amended to read as follows: "The name of any member one year in arrears for dues shall be removed from the roll of membership; provided that two notices of indebtedness shall have been given him by the Treasurer, at intervals of three months; and no such member shall be restored to membership until he has been re-elected."

The following new rule was also adopted, to stand as Rule IX (the subsequent rules to be renumbered), as follows: "A committee on communications, consisting of three members, shall be appointed by the President each year, which shall receive from the Secretary all papers sent to him, from which said Committee shall select those to be read at the stated meetings."

The President appointed as this Committee for the ensuing year the Secretary and Messrs. Elliot and Allen.

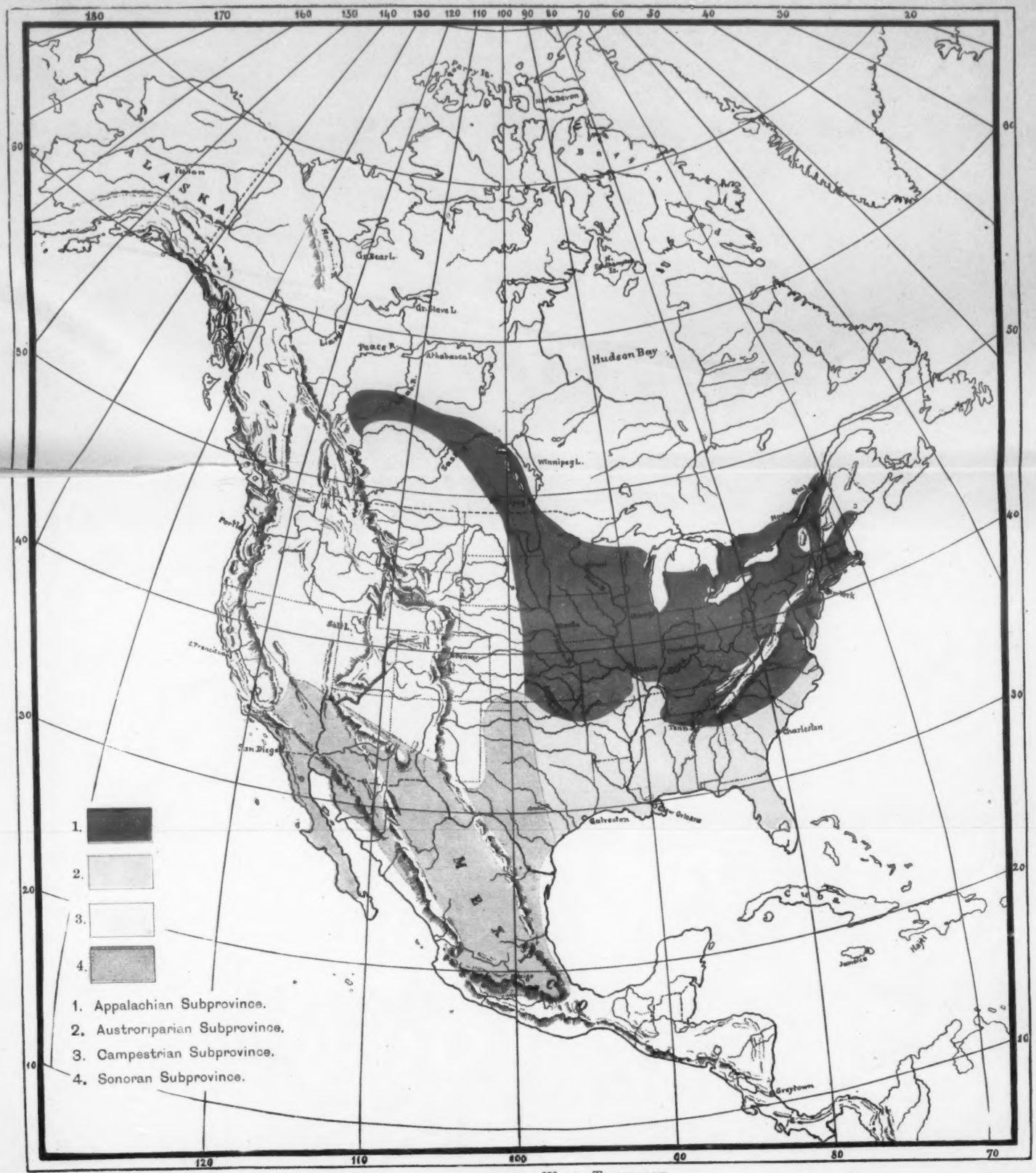
THE BRITISH ORNITHOLOGISTS' CLUB was organized at the Mona Hotel, Henrietta Street, Covent Garden, London, October 5, 1892, Dr. P. L. Sclater, F. R. S., in the chair. Rules were proposed and adopted, and Mr. Howard Saunders was elected Secretary and Treasurer. It was determined to hold a meeting on the third Wednesday of every month from October to June inclusive, and that an abstract of the proceedings of the Club be printed as soon as possible after each meeting, under the title of the 'Bulletin of the British Ornithologists' Club.' Dr. R. Bowdler Sharpe was appointed editor, and R. H. Porter, 18 Princes Street, Cavendish Square, W. London, was selected as publisher. Three numbers have been issued, No. 3 bearing date Dec. 1, 1892. The 'Bulletin' offers a speedy medium for the publication of preliminary descriptions of new species, of which not less than 16 are described in No. 2, and 6 in No. 3. It also gives brief abstracts of papers, most of which will doubtless appear at length later in 'The Ibis.' At the second regular meeting, held Nov. 16, the chairman announced that the Club had already 72 members. Evidently the plan meets a 'long felt want.'

A NEW monthly ornithological journal is announced to appear in Berlin in January, 1893, entitled 'Ornithologische Monatsberichte.' It will be under the editorship of Dr. Anton Reichenow, and published by R. Friedländer und Sohn.



1. Cold Temperate Subregion.
2 and 3. Warm Temperate Subregion.
2. Humid Province.
3. Arid Province.

NORTH AMERICAN REGION—SHOWING SUBREGIONS AND PROVINCES.



SUBPROVINCES OF THE WARM TEMPERATE.